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Water Year 1977

Volume 2. Eastern Washington

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U.S. GEOLOGICAL SURVEY WATER-DATA REPORT WA-77-2

Prepared in cooperation with the State of Washington
and with other agencies

CALENDAR FOR WATER YEAR 1977

1976

OCTOBER

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Water resources data for the 1977 water year for Washington, consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels in wells and spring. This report, in two volumes, contains discharge records for 258 gaging stations; stage only records for 4 gaging stations; stage and contents for 44 lakes and reservoirs; water quality for 162 stations, and 7 lakes; and water levels for 173 observation wells. Also included are 146 crest-stage partial-record stations. Additional water data were collected at various sites, not part of the systematic data collection program and are published as miscellaneous measurements. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in Washington.

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for
Washington

Water Year 1977

Prepared in cooperation with the State of Washington
and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

H. William Menard, Director

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1201 Pacific Avenue Suite 600
Tacoma, Washington 98402
1978

PREFACE

This report was prepared by personnel of the Washington district of the Water Resources Division of the U.S. Geological Survey under the supervision of J. E. McCall, succeeded by C. R. Collier, District Chief, and W. H. Robinson, Regional Hydrologist, Western Region. It was done in cooperation with the State of Washington and with other agencies.

This report is one of a series issued by State. General direction for the series is by J. S. Cragwall, Jr., Chief Hydrologist, U.S. Geological Survey, and G. W. Whetstone, Assistant Chief Hydrologist for Scientific Publications and Data Management.

Data for Washington are in two volumes as follows:

Volume 1. Western Washington

Volume 2. Eastern Washington

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GAGING STATION IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

(Letter after station name designates type of data: (d) discharge (e) elevation, gage height or contents, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment, (p) pesticide)

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WATER RESOURCES DATA FOR WASHINGTON, 1977

INTRODUCTION

Water resources data for the 1977 water year for Washington consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water-quality of ground water. This report, in two volumes, contains discharge records for 258 gaging stations; stage only records for 4 gaging stations; stage and contents for 44 lakes and reservoirs; water quality for 162 gaging stations, 7 lakes, 50 wells and 71 miscellaneous sites; and water levels for 173 observation wells. Also included are 146 crest-stage partial-record stations and 19 low-flow partial-record stations. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Washington.

Volume 2 of this report contains data for Eastern Washington and is defined as the Upper Columbia River Basin, the Snake River Basin and the Lower Columbia River Basin down to and including the Klickitat River Basin. Volume 1 of this report contains data for Western Washington and is defined as the Pacific Slope Basins and that portion of the Lower Columbia River Basin downstream from the Klickitat River Basin.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cites in the Unites States or may be purchased from Branch of Distribution, U.S. Geological Survey, 604 South Pickett Street, Alexandria, Va. 22304.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report WA-77-2." Water-Data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22161.

COOPERATION

The U.S. Geological Survey and organizations of the State of Washington have had cooperative agreements for the systematic collection of surface-water and water-quality records since 1909. Organizations that supplied data are acknowledge in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Washington State Department of Ecology, Wilbur G. Hallauer
Washington State Department of Fisheries, Gordon Sandison
Washington State Department of Transportaion, William A. Bulley, secretary
Washington State Department of Game, Ralph W. Larson, director
City of Seattle, Department of Lighting, Gordon Vickery, superintendent
Municipality of Metropolitan Seattle, Neil Peterson, executive director
City of Tacoma, Department of Public Utilities, A. J. Benedetti, director
City of Tacoma, Department of Public Works, Ronald M. Button, director
City of Everett, Department of Utilities, Marvin C. Haglund, director
City of Bellevue, Department of Public Works, Clark Douglas, director
Chelan County, P.U.D. No. 1, Howard Elmore, manager
King County, Department of Public Works, J. L. DeSpain, director
Lewis County, Department of Public Works, Verne Wagar, director
Spokane County Board of Commissioners, Jerry C. Kopet, chairman
Quileute Tribal Council, Christian Penn, Sr., chairman
Quinault Tribal Council, Joseph B. DeLa Cruz, president
Makah Tribal Council, John Ides, chairman
Spokane Tribe, Glenn F. Galbraith, executive director
Tulalip Tribal Board of Directors, G.S. Williams, chairman
Yakima Tribal Council, Watson Totus, chairman

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 44 gaging stations; the U.S. Environmental Protection Agency, in collecting records for 12 water-quality stations; the U.S. Energy Research and Development Administration, in collecting records for 6 water-quality stations; the Bureau of Reclamation, U.S. Department of Interior, in collecting records for 18 gaging stations; the U.S. Department of State, in collecting records for 13 gaging stations; the Bonneville Power Administration, in collecting records for 4 gaging stations.

The following organizations aided in collecting records:

Crown Zellerbach Corporation; Intercounty River Improvement; ITT Rayonier; Pacific Power and Light Co., No. 1 of Cowlitz County, No. 1 of Douglas County, No. 2 of Grant County, No. 1 of Pend Oreille County, Puget Sound Power and Light Co., Skagit County Engineer; University of Washington, through its Fisheries Research Institute; Washington Public Power Supply System; Washington Water Power Co., Whatcom County Engineer.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report are defined below. See also table for converting English units to International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, ac-ft) is a quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic metres.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse of plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of samples.

Fecal streptocaccal bacteria are bacteria found also in intestines of warm-blood animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material

Cells /volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonacous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloro-platinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulated the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet or water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/s, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to the amount of substance present in true chemical solution. In practice, however, the term includes all forms of substance that will pass through a 0.45-micrometer membrane filter, and thus may include some very small (coloidal) suspended particles. Analyses are performed on filtered samples.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution area, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters(m^2), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Partial-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay..........	0.00024 - 0.004	Sedimentation
Silt..........	.004 - .062	Sedimentation
Sand..........	.062 - 2.	Sedimentation or sieve
Gravel........	2.0 -64.0	Sieve

The particle-size distribution given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillienth (1×10^{12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those higher green plants. Some forms produce algal mats or floating "moss in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45 micrometer filter.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom....................Animal
Phylum.................Arthropoda
Class.....................Insecta
Order...............Ephemeroptera
Family................Ephemeridae
Genus....................Hexageria
Species.........Hexagenia limbata

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station such as 12041000, which appears just to the left of the station name, includes the 2-digit part number "12" plus the 6-digit downstream order number "041000".

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 below.

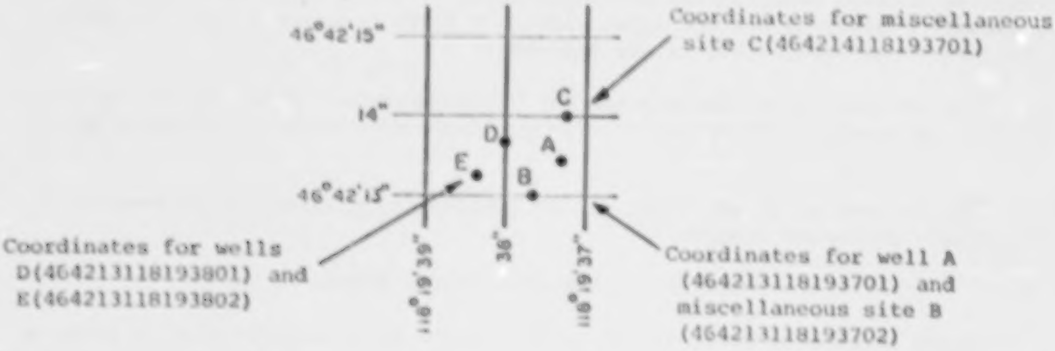
46°42'15"
14"
46°42'13"
116°19'39"
38"
116°19'37"
A
B
C
D
E
Coordinates for miscellaneous site C(464214118193701)
Coordinates for wells D(464213118193801) and E(464213118193802)
Coordinates for well A (464213118193701) and miscellaneous site B (464213118193702)

Figure 1. System for numbering wells and miscellaneous sites (latitude and longtitude).

Local identifier well-numbering system

Local identifier well numbers used by the Geological Survey in the State of Washington are based on and show locations of wells according to the rectangular system for subdivision of public land, indicating township, range, section, and 40-acre tract within the section. For example, in the well number 25/43E-15M1, the part preceeding the hyphen indicates successively the township and range (T.25 N., R.43 E.) north and east of the Willamette base line and meridian. (Because all townships in Washington are north of the Willamette base line the letter "N", indicating north is omitted; and because most of the State is east of the Willamette meridian the letter "E" is sometimes omitted for those ranges east of the Willamette meridian, but "W" is always included when the range lies west of the Willamette meridian.) The first number following the hyphen indicates the section (sec.15) and the letter (M) given the 40-acre subdivision of the section as shown in figure 2. The last number (1) is the serial number of the well in that particular 40-acre tract. Thus, the first well recorded in the NW¼SW¼ sec.15, T.25 N., R.43 E., would have the number 25/43-15M1, and the second well would have the number 25/43-15M2 or 25/43E-15M2. See figure 2 below:

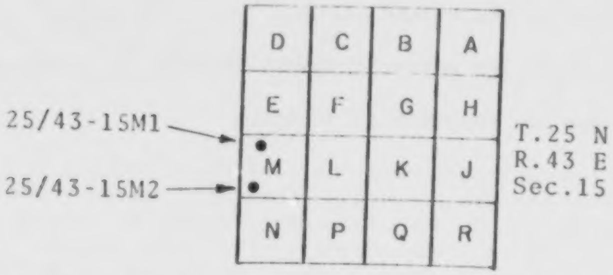

Figure 2. Local identifier well numbering system.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) os a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly samples water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are samples represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), stepbackwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the staion and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lake and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage above mean sea level, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." In references to datum of gage, the phrase "mean sea level" denotes "Sea Level Datum of 1929" as used by the Topographic Division of the Geological Survey unless otherwise qualified.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE", it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR: if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dated of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 cfs; to tenths between 1.0 and 10 cfs; to whole numbers between 10 and 1,000 cfs; and to 3 significant figures above 1,000 cfs. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight untake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

All temperature values in the daily tables are rounded to the nearest 0.5°C. Therefore, temperature values published in conjunction with water samples may be 0.1 to 0.2°C outside the range of the values published in the daily tables.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During period of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 1.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

HYDROLOGIC CONDITIONS

The annual mean yearly runoff in eastern Washington during the 1977 water year ranged generally from about 35 to 80 percent of average in the north half and from 20 to 65 percent of average in the south. Generally, over most of the area, most streams had below normal monthly flows from November or December through September, due to below normal precipitation for most months. There were few instances of yearly, or instantaneous flows below any of record, but many had one or more record low monthly flows. The Klickitat River near Pitt recorded record low monthly flows for five consecutive months, March through July, based on 49 consecutive years of record. Monthly and annual mean discharges are compared with medians at two representative gaging stations in figure 3.

The ground-water level in the key observation well in eastern Washington was below average for nine consecutive months, November to August, and with 37 years of record, established new minimum monthly water-levels for March, April, May, July and August.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office. Prices are effective January 1978 but are subject to change.

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature-influential factors, field measurement, and data presentation*, by H. H. Stevens Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages. $1.60.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W.Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages. $0.85

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages. $1.90.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. $1.75.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages. $1.00.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. $0.35.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. $0.40.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages. $1.00.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. $0.35.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6, 1968, 13 pages. $1.00.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. $1.40.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. $1.25.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. $1.20.

3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. $0.35. Not currently available.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. $0.70.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2 1976. 172 pages. $2.50.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. $0.65.

3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2, 1970. 59 pages. $2.50.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. $2.10.

4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4 Chapter A1. 1968. 39 pages. $1.60.

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. $0.35.

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972, 18 pages. $0.65.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. $0.75.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. $0.65.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages. $1.10.

5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. $2.40.

5-A2. *Determination of minor elments in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. $0.80.

5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. $0.90.

5-A4.* *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P.E. Greeson, T.A. Ehlke, G.A. Irwin, B.W. Lium, and K.V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages. $20.00.

5-A5.* *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages. $16.00.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. $2.10.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages. $2.30.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages. $0.70.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages. $1.10.

*These publications are available ONLY from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. They are in looseleaf format and are subscription items. Additional supplements will be issued to subscribers at no extra cost. Checks should be made payable to Superintendent of Documents. Requester should emphasize to Superintendent of Documents that this is a subscription item.

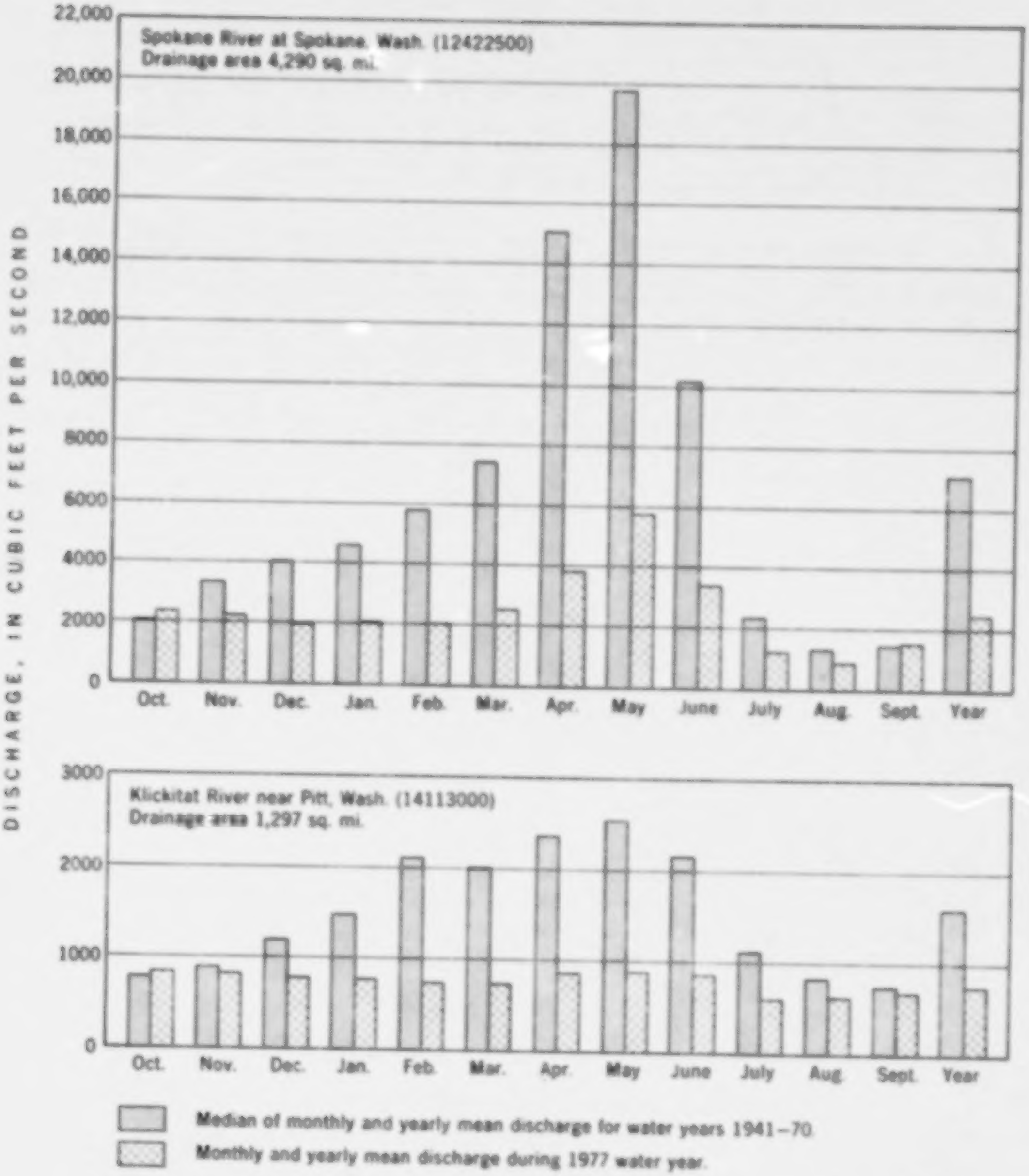

Figure 3. Discharge during 1977 water year compared with median discharge for period 1941–70 for two representative gaging stations.

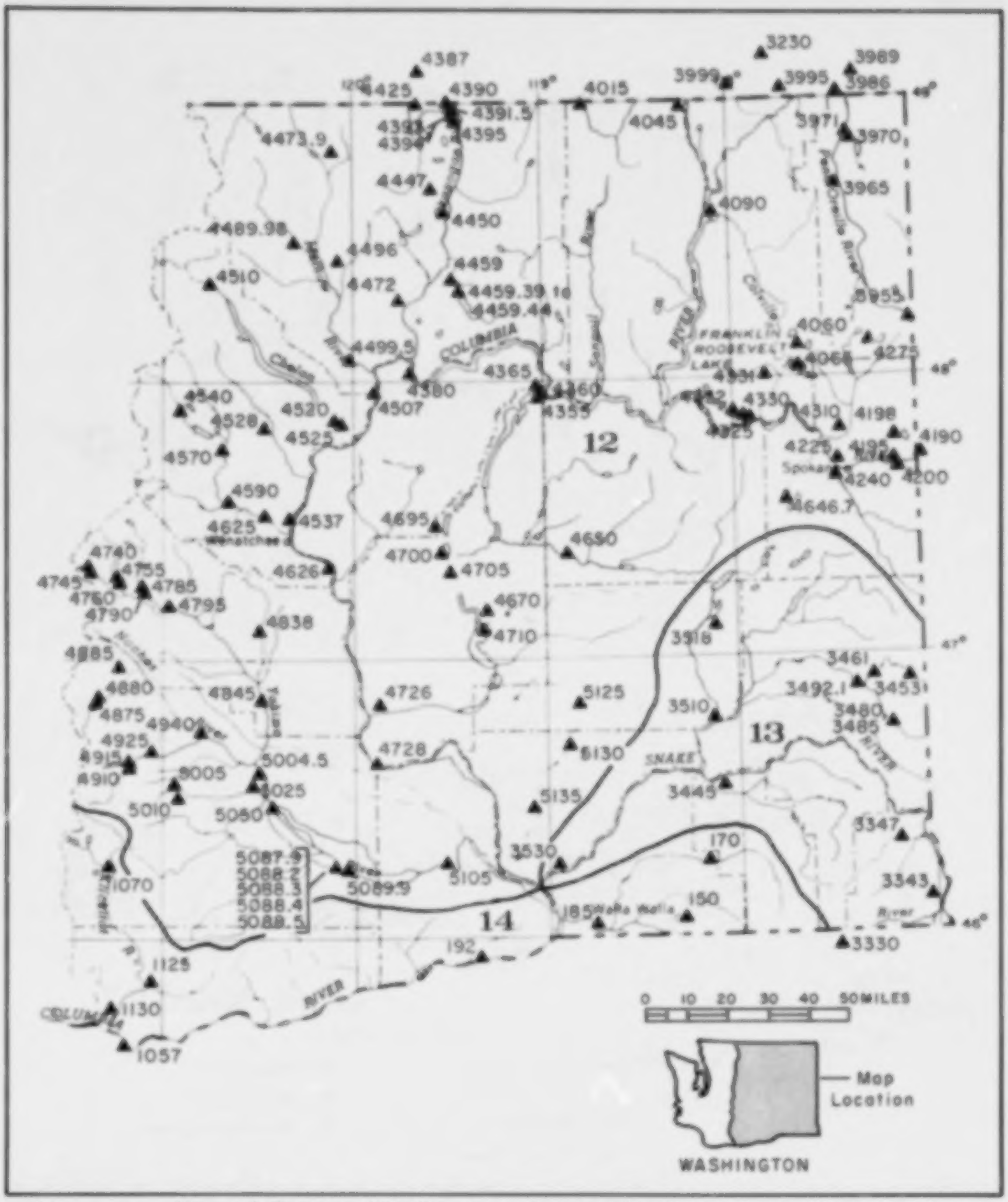
4387
3230
3989
120°
4425
4390
119°
4015
3999
3995
3986
49°
4391.5
4393
4394
4395
4473.9
4045
3971
3970
3965
4447
4090
4450
4489.98
4496
4459
4510
4472
4459.39
4459.44
3955
4060
COLUMBIA
FRANKLIN D. ROOSEVELT LAKE
4499.5
4065
4275
48°
4380
4365
4360
4331
4540
4520
4507
4355
4332
4330
4310
4198
4528
4525
12
4190
4570
4325
4225
4195
Spokane
4240
4200
4590
4646.7
4625
4537
4695
Wenatchee
4650
4740
4700
4626
4705
4745
4755
4785
4760
4790
4795
4670
4836
4710
3518
47°
4885
3461
4880
4845
4726
3492.1
3453
5125
3510
4875
4940
3480
3485
13
4925
4728
5130
SNAKE
4915
RIVER
4910
5004.5
5005
5025
5010
5060
5135
3445
3347
5087.9
5088.2
5088.3
5088.4
5088.5
5089.9
3530
170
5105
3343
1070
150
River
185
Walla Walla
46°
14
3330
192
1125
RIVER
COLUMBIA
1130
1057
0 10 20 30 40 50 MILES
Map Location
WASHINGTON

Figure 4. Map of Eastern Washington showing locations of gaging stations operated by the U.S. Geological Survey in cooperation with other agencies. Numbers shown are abbreviated versions of complete station number used in text. Part numbers are the large figures.

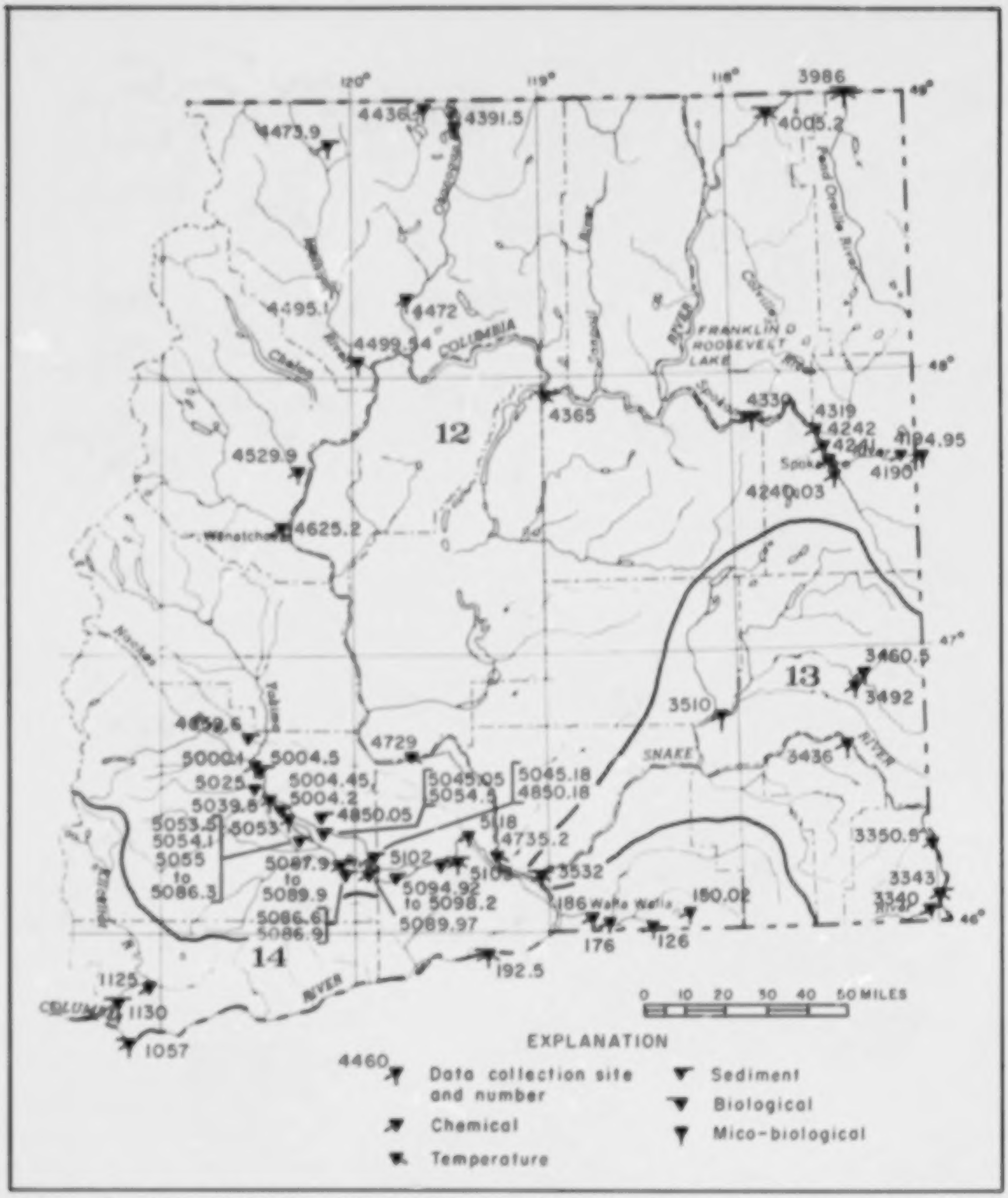
120°
119°
118°
49°
48°
47°
46°
3986
4436
4391.5
4473.9
4005.2
Okanogan
Pend Oreille River
Methow
4472
4495.1
4499.54
COLUMBIA
Chelan
FRANKLIN D ROOSEVELT LAKE
Colville
Spokane
4365
4330
4319
4242
4241
4194.95
Spokane
4190
4240.03
12
4529.9
Wenatchee
4625.2
3460.5
13
3492
3510
Naches
Yakima
4852.6
4729
5000.4
5004.5
5025
5004.45
5004.2
5045.05
5054.5
5045.18
4850.18
5039.8
4850.05
5053.5
5053
5054.1
5055
to
5086.3
5118
4735.2
SNAKE
3436
RIVER
3350.5
5102
5087.9
to
5089.9
5094.92
to 5098.2
5103
3532
3343
3340
5086.6
5086.9
5089.97
186
Walla Walla
180.02
176
126
14
192.5
Klickitat
RIVER
1125
COLUMBIA
1130
1057
0 10 20 30 40 50 MILES
EXPLANATION
4460 Data collection site and number
Chemical
Temperature
Sediment
Biological
Mico-biological

Figure 5. Map of Eastern Washington showing locations of surface-water-quality sampling stations operated by the U.S. Geological Survey in cooperation with other agencies. Numbers shown are abbreviated versions of complete station number used in text. Part numbers are the large figures.

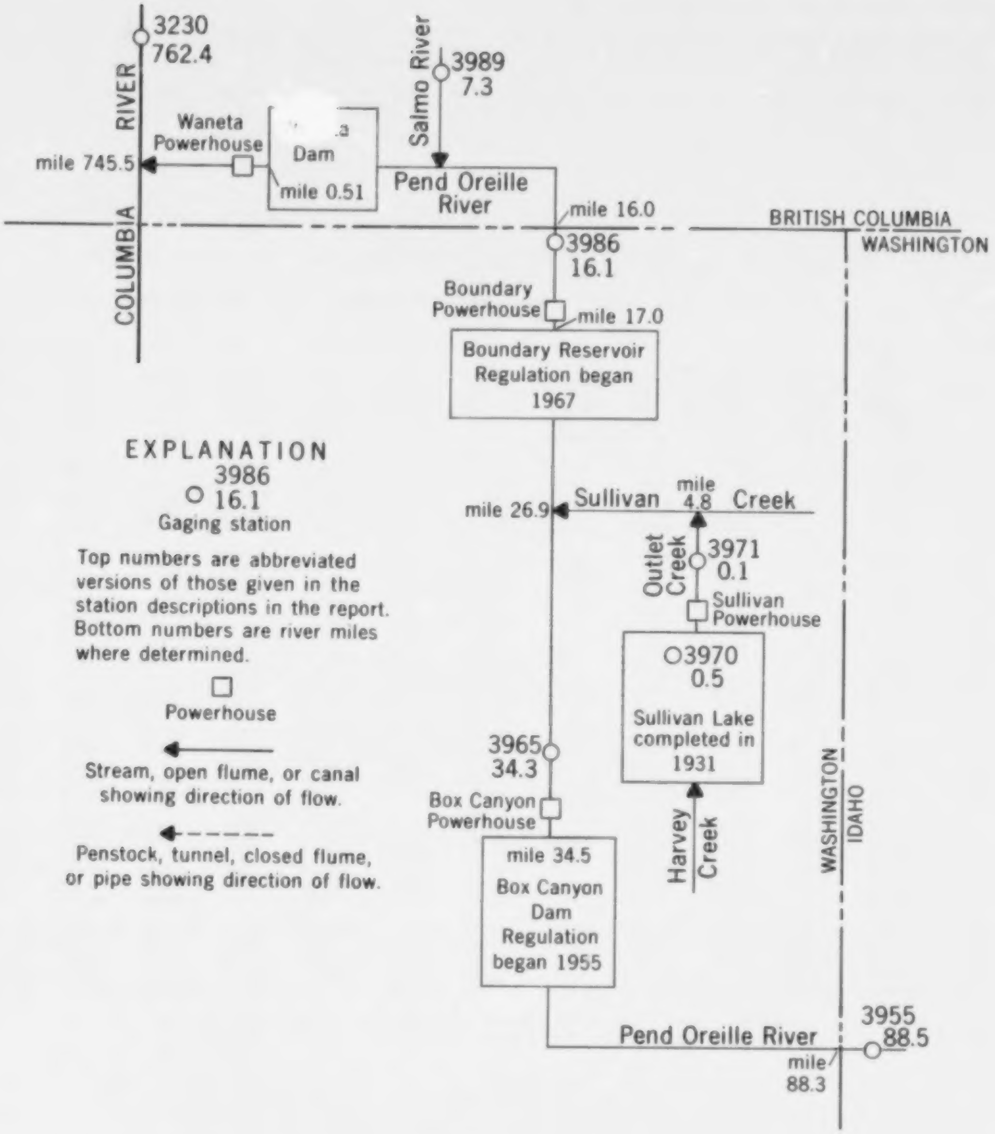
3230
762.4
COLUMBIA RIVER
3989
7.3
Salmo River
Waneta Powerhouse
Dam
mile 0.51
mile 745.5
Pend Oreille River
mile 16.0
BRITISH COLUMBIA
WASHINGTON
3986
16.1
Boundary Powerhouse
mile 17.0
Boundary Reservoir Regulation began 1967
EXPLANATION
3986
16.1
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
mile 26.9
Sullivan Creek
mile 4.8
Outlet Creek
3971
0.1
Sullivan Powerhouse
3970
0.5
Sullivan Lake completed in 1931
3965
34.3
Box Canyon Powerhouse
mile 34.5
Box Canyon Dam Regulation began 1955
Harvey Creek
WASHINGTON
IDAHO
Pend Oreille River
3955
88.5
mile 88.3

Figure 6. Gaging stations in Pend Oreille River basin and Columbia River above International Boundary.

12323000 COLUMBIA RIVER AT BIRCHBANK, BRITISH COLUMBIA
(International gaging station)

LOCATION.--Lat 49°10'40", long 117°42'59", on right bank at Birchbank, British Columbia, 0.7 mi (1.1 km) downstream from Sullivan Creek, 7 mi (11.3 km) upstream from Trail, 11.7 mi (18.8 km) downstream from Kootenay River, 17.4 mi (28.0 km) upstream from international boundary, and at mile 762.4 (1,226.7 km).

DRAINAGE AREA.--34,000 mi² (88,100 km²), approximately.

PERIOD OF RECORD.-- April 1913 to current year. Published as "at Trail, British Columbia" 1913-37.

REVISED RECORDS.--WSP 982: 1942. WSP 1216: 1949.

GAGE.--Water-stage recorder. Datum of gage is 1,329.90 ft (405.354 m) above mean sea level, 1947 international joint adjustment, published as 1,338.00 ft (407.822 m) prior to October 1948. Prior to Oct. 1, 1937, nonrecording gage on highway bridge at site 6.8 mi (10.9 km) downstream at datum 16.27 ft (4.959 m) lower.

REMARKS.--Records excellent. Flow regulated by six major reservoirs, and by numerous small reservoirs and powerplants. Diversions above station for irrigation of about 25,000 acres (101 km²).

COOPERATION.--This station is maintained by Canada under agreement with the United States.

AVERAGE DISCHARGE.--64 years, 71,350 ft³/s (2,021 m³/s), 51,690,000 acre-ft/yr (63,700 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 377,000 ft³/s (10,700 m³/s) June 9, 1961, gage height, 50.05 ft (15.255 m); maximum gage height, 50.62 ft (15.429 m) June 11, 1948; minimum discharge observed, 8,940 ft³/s (253 m³/s) Feb. 3, 1967, gage height, 6.27 ft (1.911 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 105,000 ft³/s (2,970 m³/s) June 5, gage height, 21.83 ft (6.654 m); minimum daily, 15,600 ft³/s (442 m³/s) Apr. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70200	59700	84400	77600	66800	48900	49000	54900	90700	76100	81600	65600
2	70300	59500	80800	71800	66700	55600	48600	60000	94600	76400	76500	63900
3	70800	59800	70900	68100	67500	54000	53600	64000	104000	82100	76200	62300
4	70800	59600	70600	69200	67000	58900	67000	61500	104000	79200	74300	67000
5	70600	60400	75900	63800	66600	58800	76700	60100	100000	76100	71900	72300
6	70400	60500	85300	64900	62900	56700	79500	57800	92100	74400	72000	71300
7	70100	66600	87700	65800	62400	54200	80300	50800	90600	74300	76900	69400
8	70900	72800	83400	69900	57300	54000	79900	54800	96800	74700	80000	66500
9	70500	67400	86400	79000	57200	53000	75400	54700	98800	71900	78200	66500
10	66900	71600	83700	84900	57900	53100	62600	60500	94500	71100	70700	66400
11	64900	70800	81100	84000	63400	53700	47600	64900	94900	72700	68200	64400
12	67900	70900	78700	83500	[illegible]	53900	30900	65300	85500	74900	67700	62400
13	70400	71000	77300	83500	62500	52100	15600	67500	74200	78900	67600	62600
14	70000	71100	78300	80500	46900	49600	18200	68300	62000	81600	69100	64400
15	70200	71700	78400	79400	47900	48900	34300	68600	61500	84200	71500	67200
16	68600	69200	77700	81200	47200	49200	47000	68600	56300	81900	71700	67100
17	66600	72500	79600	83000	47500	48300	54300	72100	58800	78500	71600	67200
18	68900	72000	76000	82300	47100	47900	55100	81300	57700	82600	71400	63100
19	67900	71300	69200	80200	45100	47600	59600	86000	61200	82200	74300	57500
20	69400	67700	62000	80600	44500	47700	54100	86000	73300	78400	76200	57800
21	69700	56500	64200	84400	41200	48300	48600	86100	81400	80900	76600	58200
22	70300	48200	65700	79600	40600	47300	54100	93500	81000	82200	75700	58000
23	70100	50400	65200	68200	40700	48100	52500	96300	78500	83700	75000	57900
24	77400	50300	63300	62700	41100	47600	47900	99400	78500	83600	75000	57700
25	85300	50000	66500	60800	41900	47000	49600	98000	77000	83200	79600	52900
26	85400	50100	72700	58100	40700	46900	52600	102000	80300	82100	80100	47100
27	85100	53200	77300	56500	43900	48100	54300	102000	80300	82100	79500	47200
28	84000	67800	75900	52700	47800	49400	54600	98700	75600	80900	74800	48600
29	85600	82800	75900	52200	---	48600	53700	98500	74600	79500	72000	48900
30	85700	84400	75100	59000	---	48900	55900	95300	76500	81600	66300	49100
31	70900	---	76200	67100	---	49000	---	92000	---	83800	65100	---
TOTAL	2255800	1939800	2345400	2233500	1503900	1575300	1613100	2369500	2435200	2455800	2287300	1830500
MEAN	72770	64660	75660	72050	53710	50820	53770	76440	81170	79220	73780	61020
MAX	85700	84400	67700	84900	76600	58900	80300	102000	104000	84200	81600	72300
MIN	64900	48200	62000	52200	40600	46900	15600	50800	56300	71100	65100	47100
AC-FT	4474000	3848000	4652000	4430000	2983000	3125000	3200000	4700000	4830000	4871000	4537000	3631000

CAL YR 1976 TOTAL 30903100 MEAN 84430 MAX 191000 MIN 30100 AC-FT 61300000
WTR YR 1977 TOTAL 24845100 MEAN 68070 MAX 104000 MIN 15600 AC-FT 49280000

12395500 PEND OREILLE RIVER AT NEWPORT, WA

LOCATION.--Lat 48°10'56"(revised), long 117°02'00", in SE¼SW¼ sec.24, T.56 N., R.6 W. (Boise Meridian), Bonner County, Hydrologic Unit 17010216, on left bank at Newport, 0.2 mi (0.3 km) upstream from bridge on U.S. Highway 2, 0.2 mi (0.3 km) east of Idaho-Washington State line, 1.6 mi (2.6 km) downstream from Albeni Falls Dam, and at mile 88.5 (142.4 km).

DRAINAGE AREA.--24,200 mi² (62,700 km²), approximately.

PERIOD OF RECORD.--June 1903 to September 1941, October 1952 to current year. Prior to October 1921, published as Clark Fork at Newport, Wash., October 1921 to September 1937, as Clark Fork at Priest River, Idaho, and October 1937 to September 1941, as Pend Oreille River at Priest River, Idaho. Chemical analysis, water years 1959-69, 1973-74, 1976 published as 12395500 "Pend Oreille River at Newport", later changed to 12395502 "Pend Oreille River at U.S. Highway 2, at Newport."

REVISED RECORDS.--WSP 532: 1903-11.

GAGE.--Water-stage recorder. Datum of gage is 1,999.7 ft (609.509 m) above mean sea level. Prior to Sept. 22, 1928, nonrecording gages at Priest River, Newport, or Metaline Falls at various datums (see description, WSP 532, p. 92). Sept. 22, 1928, to Sept. 30, 1935, at datum 2,040.14 ft (621.835 m) above mean sea level, and Oct. 1, 1935, to Sept. 30, 1941, at datum 2,000 ft (609.6 m) above mean sea level, water-stage recorder at Priest River. Since December 1952, auxiliary water-stage recorder 2.74 mi (4.41 km) downstream from base gage.

REMARKS.--Records excellent. Flow regulated at Albeni Falls Dam and affected by storage in Pend Oreille Lake (see sta 12392500), Flathead Lake, Hungry Horse Reservoir, and several smaller reservoirs. Diversions above station for irrigation of about 354,000 acres (143,000 hm²).

AVERAGE DISCHARGE.--63 years (water years 1904-41, 1953-77), 26,000 ft³/s (736 m³/s), 18,840,000 acre-ft/yr (23.2 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft³/s (3,850 m³/s) June 15, 1913, June 21, 1933, June 12, 1972; minimum, 1,280 ft³/s (36 m³/s) Sept. 1, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 64.0 ft (19.51 m) in June 1894, present site and datum, from water-surface profiles (discharge, about 200,000 ft³/s or 5,660 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,500 ft³/s (2,864 m³/s) Oct. 6; maximum gage height, 36.40 ft (11.095 m) Oct. 7; minimum discharge, 2,770 ft³/s (78.4 m³/s) Sept. 15; minimum gage height, 30.28 ft

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21700	21500	14400	16900	21000	16500	14200	4330	7930	7350	12100	8400
2	21300	21200	16700	15600	21400	16700	13400	10600	7920	7420	11500	8480
3	21500	20600	16900	13600	20000	15700	13100	16000	9990	6320	12200	8530
4	24300	19200	15100	13600	16600	14800	11600	16100	14300	4350	12100	8540
5	29200	18800	14300	15200	15300	10400	8130	16200	14200	4330	11600	8730
6	29900	19000	15000	17600	13500	10800	5450	16200	17000	4940	10800	12300
7	27800	19200	14200	18600	13600	13800	4070	16500	20200	6440	10800	14000
8	26500	19400	13700	16300	13600	17800	3520	16400	21800	7390	11000	14100
9	26500	17900	13500	11800	13300	21900	3140	17000	22100	4350	10800	14100
10	26300	16500	14800	11600	9590	22300	4300	20900	22200	4760	10300	14100
11	26500	14200	15600	13600	7730	15500	4640	22600	19300	6330	9660	14100
12	26500	13400	15300	15500	6920	10900	4300	22400	17700	4450	8990	14100
13	26600	13400	15800	14500	6760	11000	4050	21700	19400	4390	8100	14100
14	26900	13700	15800	14100	6760	16600	3930	21500	19900	4390	5740	14100
15	26800	14700	15900	14200	7050	21000	4470	21600	18100	4370	4050	14000
16	26700	16200	15600	14100	7040	17700	4230	21500	17500	4340	6700	14100
17	27200	17500	14800	15700	6800	14500	4230	21500	16400	4290	8440	14200
18	26500	18100	13800	18300	7070	14100	4260	21600	14100	4210	8280	14100
19	27000	18700	13700	19700	7380	13400	3980	21800	14500	4430	8250	14100
20	26800	18400	15900	19700	8940	13200	4300	21700	17300	4480	8150	14100
21	26700	18600	17800	19500	12900	14400	4050	21800	11300	7680	8290	14100
22	26800	20300	17800	15500	16100	16600	4090	14800	11100	9600	8420	14200
23	26900	21100	16200	14200	15400	16000	3850	8030	10500	9820	8930	14200
24	27100	20700	14700	15300	14400	15400	4160	7850	10000	9630	9520	14300
25	27300	18400	13400	16500	13600	15500	4210	7850	10800	9700	11300	14400
26	27200	18400	13500	19300	13200	13500	4210	7770	10900	11200	13100	14200
27	27300	18500	15300	19300	13500	13300	4260	7770	12000	11900	13200	14200
28	27100	18700	16800	19400	15500	13400	4260	7740	16400	12100	14300	14500
29	24300	17200	17200	18200	---	14300	4420	7790	20500	13100	12300	14300
30	21400	14300	17900	18100	---	15100	4400	7760	11400	14200	10900	17300
31	21700	---	17700	19100	---	15500	---	7700	---	13900	9490	---
TOTAL	806300	537800	479100	504600	364940	471600	165210	474990	456740	226160	309340	397980
MEAN	26010	17930	15450	16280	12320	15210	5507	15320	15220	7295	9979	13270
MAX	29900	21500	17900	19700	21400	22300	14200	22600	22200	14200	14300	17300
MIN	21300	13400	13400	11600	6760	10400	3140	4330	7920	4210	4050	8400
AC-FT	1599000	1067000	950300	1001000	684200	935400	327700	942100	905900	448600	613600	789400

CAL YR 1976 TOTAL 11423940 MEAN 31210 MAX 96900 MIN 9540 AC-FT 22660000
WTR YR 1977 TOTAL 5174760 MEAN 14180 MAX 29900 MIN 3140 AC-FT 10260000

12396500 PEND OREILLE RIVER BELOW BOX CANYON, NEAR IONE, WA

LOCATION.--Lat 48°46'52", long 117°24'55", in SE¼NE¼ sec.19, T.38 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 1,000 ft (305 m) downstream from Box Canyon Dam, 2.8 mi (4.5 km) north of Ione, and at mile 34.3 (55.2 km).

DRAINAGE AREA.--24,900 mi² (64,500 km²), approximately.

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Mar. 29, 1954, nonrecording gage at site 300 ft (91 m) upstream at same datum. Mar. 29, to Aug. 25, 1954, nonrecording gage at present site and datum. Since Aug. 20, 1967, auxiliary water-stage recorder 1.2 mi (1.9 km) downstream at same datum.

REMARKS.--Records excellent. Flow completely regulated by Box Canyon Reservoir, 1,000 ft (305 m) upstream since June 1955 and by Pend Oreille Lake, Flathead Lake, Hungry Horse Reservoir, and by several smalller reservoirs and powerplants. In 1946 there were diversions for irrigation of 340,000 acres (1,380 km²) above the station.

AVERAGE DISCHARGE.--25 years, 28,470 ft³/s (806.3 m³/s) 20,630,000 acre-ft/yr (25,400 hm³/yr). The figure published in the 1976 report was in error; the correct figure is 24 years, 29,100 ft³/s (824.1 m³/s) 21,080,000 acre-ft/yr (26,000 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft³/s (3,850 m³/s) June 13, 14, 1972; maximum elevation, 2,014.54 ft (614.032 m) June 14, 1972; minimum observed discharge, 125 ft³/s (3.54 m³/s) Apr. 23, 1967 (result of regulation).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1948 reached elevation of 2,018.00 ft (615.086 m), from floodmarks, discharge, 167,000 ft³/s (4,730 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 29,000 ft³/s (821 m³/s) Oct. 7; maximum elevation, 1,993.54 ft (607.631 m) Oct. 25; minimum daily discharge, 3,190 ft³/s (90.3 m³/s) July 14; minimum elevation, 1,980.81 ft (603.751 m) Apr. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22200	22400	13600	16700	18900	15800	15100	5470	7610	8340	14700	8040
2	22800	21400	15800	15800	19600	16200	13900	8990	8760	7620	12500	7890
3	21700	21300	17300	13800	22100	16800	13000	14400	8110	6640	13300	7970
4	21800	20500	16900	13800	18900	16500	12500	18700	12800	5100	11700	8920
5	26400	19600	14500	14400	16400	13000	9790	17400	13900	4970	11600	8410
6	28600	19000	13700	16600	14900	10400	7320	16100	16000	4240	10900	11800
7	29000	18900	13900	17600	12800	11700	5060	16800	19300	4860	10000	13300
8	28100	18600	13200	17500	12800	16800	4570	17100	22400	6940	10600	14400
9	27600	19000	13800	15600	13000	19800	5020	16700	22000	6800	10300	14200
10	27000	17200	14400	12900	11400	22700	4960	19700	22000	5060	10500	14800
11	27000	15200	15200	12800	8810	20700	5330	21500	21300	6510	8810	14800
12	27100	13900	15400	14300	7460	13400	5390	23100	19900	5580	8580	14700
13	27400	13700	14700	15400	8170	11200	5480	22900	18600	3460	8440	14200
14	27100	13200	15000	15100	7700	12200	5430	22400	19800	3190	7480	14200
15	27400	13500	15300	14500	7370	21000	5480	22200	18100	3530	5230	14600
16	26700	14700	15300	14100	7530	19600	5250	21600	17900	4940	5750	13800
17	27200	16200	14700	14500	7690	15500	5220	22300	17700	6810	8070	15200
18	27600	17500	13700	17300	7500	14600	5230	22700	16500	6940	8030	14400
19	26800	18300	13400	19200	7190	12800	5020	21800	14100	5430	7560	14200
20	27000	19200	13300	20100	7600	12800	4670	21500	14500	5840	8080	14700
21	26800	19100	16700	19700	10800	13600	4920	21900	12500	5830	9720	13800
22	27200	20100	17000	17700	14500	14900	4870	18600	11200	8510	9070	14300
23	27400	20400	17000	15600	16500	16100	4810	10400	11300	9660	8120	15000
24	27300	19500	14800	14000	14600	15700	4820	7620	9690	8470	8670	15000
25	27000	19100	14100	16400	14100	16000	4850	9160	9310	11900	10200	15100
26	27000	19100	13100	18600	14400	14900	4910	11400	9940	9070	12700	13700
27	27200	19200	13200	19100	13400	12300	5040	8600	10200	11300	12700	13600
28	27500	19300	15300	18500	13100	12800	5720	8220	12700	11700	14000	15000
29	25600	18300	16000	18900	---	13200	5400	8410	18200	12700	13600	15200
30	22900	16200	16400	18500	---	14500	5220	7350	16400	13600	10600	16600
31	22000	---	17200	18300	---	15300	---	7650	---	13700	10500	---
TOTAL	814400	543600	463900	507300	349220	472000	194280	492670	452720	229240	312010	401030
MEAN	26270	18120	14960	16360	12470	15230	6476	15890	15090	7395	10060	13370
MAX	29000	22400	17300	20100	22100	22700	15100	23100	22400	13700	14700	16600
MIN	21700	13200	13100	12800	7190	10400	4570	5470	7610	3190	5230	7890
AC-FT	1615000	1078000	920100	1006000	692700	936200	385400	977200	898000	454700	618900	795400

CAL YR 1976 TOTAL 11472340 MEAN 31350 MAX 88400 MIN 8980 AC-FT 22760000
WTR YR 1977 TOTAL 5232370 MEAN 14340 MAX 29000 MIN 3190 AC-FT 10380000

12397000 SULLIVAN LAKE NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'21", long 117°17'15", in SW¼NE¼ sec.31, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, 200 ft (61 m) south of dam at outlet, 4.0 mi (6.4 km) southeast of Metaline Falls.

DRAINAGE AREA.--51.2 mi² (132.6 km²).

PERIOD OF RECORD.--May 1912 to September 1923, January 1959 to current year (fragmentary).

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level (levels by Pend Oreille County Public Utility District). Prior to Sept. 30, 1923, nonrecording gage on dam at outlet of lake at different datum.

REMARKS.--Lake elevation is controlled by concrete dam. Some small diversions for domestic use.

COOPERATION.--Elevation record furnished by Public Utility District No. 1 of Pend Oreille County.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 2,589.94 ft (789.414 m) July 15, 1975; minimum observed, 2,564.00 ft (781.507 m) on many days during period Jan. 6 to Mar. 25, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum elevation observed, 2,588.00 ft (788.822 m) Oct. 1; minimum observed, 2,564.28 ft (781.592 m) Feb. 24.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2588.00	2577.10	---	---	---	---	2564.96	---	2572.72	---	2575.00	---
2	2587.90	2576.80	---	---	---	---	---	---	2572.85	2574.85	---	---
3	2587.70	2576.49	---	---	---	2564.32	---	---	2572.97	---	2575.00	---
4	2587.50	2575.50	---	---	---	---	---	---	2573.10	---	---	---
5	2587.25	2574.40	---	---	---	---	---	---	2573.25	2574.85	2575.05	2575.08
6	2586.80	2573.35	---	2564.38	---	---	---	---	2573.40	---	---	---
7	2586.40	2572.40	---	---	---	---	2565.04	---	2573.52	---	---	---
8	2586.00	2571.70	---	---	---	---	---	---	2573.69	2574.92	2575.05	---
9	2585.55	2570.70	2564.66	---	---	---	---	---	2573.86	---	---	---
10	---	2569.90	---	---	---	2564.54	---	---	2573.98	---	---	---
11	2584.75	2569.00	---	---	---	---	---	---	2574.05	2574.97	---	---
12	2584.30	2568.60	---	---	---	---	---	---	2574.16	---	---	2575.05
13	2583.95	2568.10	---	---	---	---	---	---	2574.25	2575.00	---	---
14	2583.50	2567.60	---	2564.38	---	---	2565.30	2570.10	2574.35	2575.00	---	---
15	2583.10	2567.20	---	---	---	---	---	2570.25	2574.40	---	2574.98	---
16	2582.75	2566.90	2564.56	---	---	---	---	2570.37	2574.45	2575.05	---	---
17	2582.35	2566.65	---	---	---	2564.66	---	2570.50	2574.52	---	---	---
18	2582.00	2566.40	---	---	---	---	---	2570.70	2574.60	---	---	---
19	2581.40	2566.20	---	---	---	---	---	2570.90	2574.68	---	---	2575.10
20	2581.10	2566.00	---	2564.36	---	---	2565.48	2571.02	2574.75	2575.00	---	---
21	2580.80	2565.90	---	---	---	---	2565.52	2571.17	2574.75	---	---	---
22	2580.45	2565.75	---	---	---	---	---	2571.34	2574.75	---	2574.95	---
23	2580.05	2565.60	2564.46	---	---	---	---	2571.50	2574.80	2575.04	---	---
24	2579.75	2565.50	---	---	2564.28	2564.81	---	2571.70	2574.80	---	---	---
25	2579.40	---	---	---	---	---	---	2571.84	2574.80	---	---	---
26	2579.05	2565.30	---	---	---	---	---	2572.00	2574.80	2575.05	---	2575.20
27	2578.70	2565.25	---	2564.30	---	---	2566.26	2572.10	2574.85	---	---	---
28	2578.35	2565.10	---	---	---	---	---	2572.25	2574.85	---	2575.00	---
29	2578.00	2565.05	---	---	---	---	---	2572.35	2574.85	2575.05	---	---
30	2577.75	2565.00	---	---	---	---	---	2572.50	2574.85	---	---	---
31	2577.45	---	---	---	---	2564.94	---	2572.63	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	2574.19	---	---	---
MAX	---	---	---	---	---	---	---	---	2574.85	---	---	---
MIN	---	---	---	---	---	---	---	---	2572.72	---	---	---

12397100 OUTLET CREEK NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'42", long 117°17'12", in SW¼SE¼ sec.30, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, on right bank 0.1 mi (0.2 km) upstream from mouth, 0.4 mi (0.6 km) downstream from Sullivan Lake Dam, and 4 mi (6.4 km) east of Metaline Falls.

DRAINAGE AREA.--51.5 mi^2 (133.4 km^2).

PERIOD OF RECORD.--January 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,540.2 ft (774.25 m) above mean sea level (unadjusted).

REMARKS.--Records excellent. Flow completely regulated by Sullivan Lake 0.4 mi (0.6 km) upstream (see sta 12397000). No diversions.

AVERAGE DISCHARGE.--18 years, 75.3 ft^3/s (2.132 m^3/s), 54,550 acre-ft/yr (67.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 924 ft^3/s (26.2 m^3/s) May 31, 1969, gage height, 12.26 ft (3.737 m); minimum 1.6 ft^3/s (0.045 m^3/s) part of each day Apr. 9-12, 1973, gage height, 8.76 ft (2.670 m).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 766 ft^3/s (21.7 m^3/s) Nov. 4; minimum daily discharge, 2.0 ft^3/s (0.06 m^3/s) Mar. 3-5, Apr. 21-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	76	215	45	19	18	14	2.9	2.3	4.6	6.4	7.1	6.8
2	119	210	43	19	18	9.4	2.9	2.5	4.6	6.4	7.1	6.8
3	119	458	41	19	18	2.0	2.9	2.5	4.6	6.4	7.1	6.8
4	161	766	40	19	18	2.0	2.9	2.7	4.9	6.4	7.1	7.1
5	255	720	39	19	18	2.0	3.1	2.9	4.9	6.4	7.1	7.1
6	296	666	38	18	18	2.1	3.1	2.9	4.9	6.4	7.1	7.1
7	293	618	38	18	19	2.3	3.1	2.9	5.2	6.4	7.1	7.1
8	287	568	32	18	19	2.5	2.9	3.1	5.2	6.4	7.1	7.1
9	284	518	31	18	19	2.9	2.9	3.1	4.9	6.4	7.1	7.1
10	281	473	30	18	19	2.7	2.9	3.3	4.9	6.4	7.1	7.1
11	278	427	29	18	19	2.7	2.9	3.3	5.2	6.4	7.1	7.1
12	272	380	28	18	18	2.5	2.9	3.6	5.2	6.4	7.1	7.1
13	269	318	26	19	17	2.7	3.1	3.3	5.2	6.4	7.1	7.1
14	266	272	25	18	16	2.5	2.7	3.3	5.5	6.4	6.8	7.1
15	263	232	24	19	16	2.5	2.7	3.6	5.5	6.4	6.8	7.1
16	260	202	24	19	16	2.5	2.9	3.6	5.5	6.4	6.8	7.1
17	258	176	24	19	16	2.5	2.7	3.8	5.8	6.4	6.8	7.1
18	255	154	23	19	15	2.5	2.7	3.8	5.8	6.8	6.8	7.1
19	252	133	22	19	16	2.3	2.9	3.8	5.8	6.8	6.8	7.1
20	249	119	21	19	15	2.5	2.3	4.0	5.8	6.8	6.8	7.1
21	246	105	21	19	15	2.5	2.0	4.0	5.8	6.8	6.8	7.1
22	244	94	21	19	16	2.7	2.0	4.0	5.8	6.8	6.8	6.8
23	244	86	21	18	15	2.9	2.0	4.3	6.1	6.8	6.8	6.8
24	241	78	21	18	14	3.1	2.0	4.3	6.1	6.8	6.8	7.1
25	238	73	21	18	14	3.1	2.0	4.3	6.1	6.8	6.8	6.8
26	232	66	21	19	14	2.9	2.1	4.6	6.1	6.8	6.8	6.8
27	229	61	21	18	13	2.9	2.1	4.3	6.1	6.8	6.8	6.8
28	226	56	21	18	13	2.9	2.1	4.3	6.4	6.8	6.8	6.8
29	224	53	20	18	---	3.1	2.3	4.3	6.4	6.8	6.8	6.8
30	221	50	20	18	---	3.1	2.3	4.3	6.4	6.8	6.8	6.8
31	218	---	20	18	---	3.1	---	4.6	---	6.8	6.8	---
TOTAL	7356	8347	851	573	462	99.4	78.3	111.6	165.3	204.0	214.7	209.7
MEAN	237	278	27.5	18.5	16.5	3.21	2.61	3.60	5.51	6.58	6.93	6.99
MAX	296	766	45	19	19	14	3.1	4.6	6.4	6.8	7.1	7.1
MIN	76	50	20	18	13	2.0	2.0	2.3	4.6	6.4	6.8	6.8
AC-FT	14590	16560	1690	1140	916	197	155	221	328	405	426	416

CAL YR 1976 TOTAL 28991.1 MEAN 79.2 MAX 766 MIN 2.5 AC-FT 57500
WTR YR 1977 TOTAL 18672.0 MEAN 51.2 MAX 766 MIN 2.0 AC-FT 37040

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY
(International gaging station)

LOCATION.--Lat 48°59'56", long 117°21'09", in SW¼NE¼ sec.3, T.40 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 0.1 mi (0.2 km) upstream from international boundary, 0.9 mi (1.4 km) downstream from Boundary Dam, 6.0 mi (9.7 km) downstream from Slate Creek, 9.7 mi (15.6 km) north of Metaline Falls and at mile 16.1 (25.9 km).

DRAINAGE AREA.--25,200 mi² (65,300 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1908 to September 1910 (gage heights only), October 1912 to current year. Prior to October 1928, published as Clark Fork at Metaline Falls, October 1928 to September 1937 as Clark Fork below Z Canyon, near Metaline Falls, and October 1938 to September 1964 as "below Z Canyon, near Metaline Falls." Concurrent records published for present site December 1962 to September 1964.

REVISED RECORDS.--WSP 442: 1913. WSP 1716: 1919.

GAGE.--Water-stage recorder. Datum of gage is 1,700 ft (518.21 m) above mean sea level (city of Seattle Boundary Dam datum). Prior to Dec. 20, 1928, nonrecording gage at Metaline Falls at datum approximately 1,983.4 ft (604.54 m) above mean sea level. Dec. 20, 1928, to Sept. 30, 1964, water-stage recorder at site 1.3 mi (2.1 km) upstream at datum 1,721.18 ft (524.616 m) above mean sea level (levels by Corps of Engineers).

REMARKS.--Records excellent. Flow regulated by Boundary Reservoir 0.9 mi (1.4 km) upstream beginning April 1967 and by Box Canyon Reservoir beginning June 1955, Pend Oreille Lake beginning June 1952 (see sta 12392500), Flathead Lake beginning April 1938 (see sta 12371500), Hungry Horse Reservoir beginning September 1951 (see sta 12362000) and by several smaller reservoirs and powerplants. In 1946 there were diversions for irrigation of 340,000 acres (1,380 km²) above the station and there probably has not been any appreciable change since that time.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--65 years, 27,330 ft³/s (774.0 m³/s), 19,800,000 acre-ft/yr (24,400 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 171,300 ft³/s (4,850 m³/s) June 13, 1948, gage height, 60.25 ft (18.364 m), site and datum then in use; minimum daily, 200 ft³/s (5.66 m³/s) Aug. 12, 1967, result of regulation; minimum observed, 109 ft³/s (3.09 m³/s) Apr. 23, 1967, result of regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of 69.0 ft (21.03 m), from floodmarks, at site and datum 1.3 mi (2.1 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 34,400 ft³/s (974 m³/s) Feb. 24, gage height, 25.68 ft (7.827 m); minimum daily, 2,880 ft³/s (81.6 m³/s) July 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22700	22600	17800	17400	21400	16500	16500	4970	8480	7840	13700	9850
2	20900	23500	16300	18000	19700	17500	12700	5010	6470	7280	12600	11200
3	21300	21700	16000	17500	20600	18700	11400	11700	12000	5670	13000	8680
4	23300	21300	12600	16400	19400	16700	13100	12000	12400	5920	13300	7270
5	26600	21700	10900	15000	15900	9870	10500	18900	12400	7290	12900	10100
6	28600	19100	16000	16200	15200	10200	8670	22300	15400	5000	11900	14400
7	28100	15700	14500	14000	12900	14300	8050	17600	17400	4470	8230	14000
8	26100	21400	15400	10600	13100	14700	6990	14600	23200	5290	12300	14700
9	26600	18000	16400	15300	14300	19700	4970	22900	22400	6550	10300	14000
10	28000	18500	15300	13000	11100	23200	4970	20400	22800	4950	12900	13800
11	28500	16200	9210	13500	10100	23400	4970	18100	21700	7340	11500	14900
12	27900	14500	13900	15900	6230	13300	4970	21800	15600	7220	9810	15300
13	27100	14500	15600	15000	8200	9410	4970	25300	16800	3650	8670	15900
14	26600	15100	15400	15100	8420	15800	4950	23000	21100	3110	8350	14900
15	27400	12800	16000	12400	9230	17800	4990	17200	18100	3310	8680	15300
16	26500	15100	15800	13900	9200	16900	4960	22000	19700	4300	6950	13000
17	28000	15900	16500	13900	8470	17300	4970	21000	17300	2880	8540	14400
18	29000	20500	13700	20800	7190	14800	4970	22600	13200	4790	9960	15300
19	24100	19000	13700	17400	6640	13900	4980	21300	11200	4500	10400	14900
20	28700	15600	13900	18800	7190	11900	4940	24000	17700	5000	9100	15700
21	28700	17700	17500	19300	8700	14800	4990	14400	13000	6000	7920	15800
22	27900	19400	16600	18900	16400	14900	4990	10900	9560	8680	11800	14100
23	27300	22400	18000	14400	16300	16800	4990	7220	11000	9100	9550	15400
24	24400	21800	15500	18200	18200	16700	4990	9290	10900	8100	9980	15200
25	27300	19000	11700	16200	19500	18000	5010	14300	9960	10800	10700	13500
26	28500	21000	15700	16300	12100	13500	4970	11800	10300	10200	13300	15300
27	27700	18500	12200	16900	7250	12300	4970	6120	10600	13000	10900	12600
28	28400	18100	15600	18800	14500	13000	4930	5210	14000	12900	14900	15100
29	27600	16400	16800	20500	---	13800	4940	5290	19100	13000	15400	15500
30	22500	17400	17300	15300	---	14800	4930	9060	20000	13500	11000	15500
31	23900	---	15900	18900	---	17100	---	9540	---	12900	10600	---
TOTAL	820200	554400	467710	504300	357420	481580	197230	469810	453770	224540	339140	415600
MEAN	26460	18480	15090	16270	12770	15530	6574	15160	15130	7243	10940	13850
MAX	29000	23500	18000	20800	21400	23400	16500	25300	23200	13500	15400	15900
MIN	20900	12800	9210	10600	6230	9410	4930	4970	6470	2880	6950	7270
AC-FT	1627000	1100000	927700	1000000	708900	955200	391200	931900	900100	445400	672700	824300

CAL YR 1976 TOTAL 11719450 MEAN 32020 MAX 101000 MIN 9210 AC-FT 23250000
WTR YR 1977 TOTAL 5285700 MEAN 14480 MAX 29000 MIN 2880 AC-FT 10480000

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued
(National Stream-quality Accounting Network Station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1974 to current year.
WATER TEMPERATURE: April 1974 to current year.

INSTRUMENTATION.--Water quality monitor since April 1974.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument or the probes being out of water. In addition to the water-quality monitor record, samples were collected approximately once a month.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 242 micromhos July 17, 1974; minimum, 62 micromhos April 25, 1975.
WATER TEMPERATURES: Maximum, 24.5°C July 28-30, 1975; minimum, 0.0°C at times during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 200 micromhos Dec. 8; minimum, 143 micromhos May 7.
WATER TEMPERATURES: Maximum recorded, 23.0°C Aug. 9-20; minimum recorded, 0.0°C Jan. 8-24.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)
OCT										
13...	1430	26300	154	7.6	14.2	1	16	1	--	<1
NOV										
17...	1030	20500	163	8.2	7.1	1	81	--	<1	--
DEC										
08...	0845	19600	194	8.0	2.7	1	1	--	<1	--
JAN										
10...	1230	12500	155	8.0	.2	1	110	--	B100	--
FEB										
08...	1330	13500	186	8.2	1.2	1	<1	--	<1	--
MAR										
09...	1015	31200	196	7.6	4.5	2	59	--	8	--
APR										
06...	1100	14200	180	7.8	6.0	2	<1	--	<1	--
MAY										
05...	1400	19600	146	7.7	12.4	1	94	--	<1	--
JUN										
06...	1730	20600	162	8.1	14.4	2	<1	--	<1	--
JUL										
11...	1510	11100	161	8.3	19.4	1	23	--	1	--
AUG										
10...	1700	13600	161	8.0	22.0	1	--	--	6	--
31...	1730	11600	165	8.2	19.6	1	150	--	<1	--

DATE	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)
OCT									
13...	--	83	4	23	6.2	2.5	.9	96	79
NOV									
17...	<1	85	6	24	6.0	2.7	.9	96	79
DEC									
08...	<1	86	12	23	7.0	2.8	.9	91	75
JAN									
10...	13	86	8	24	6.4	3.2	2.1	95	78
FEB									
08...	29	85	3	24	6.2	2.7	.8	101	83
MAR									
09...	260	88	7	24	6.7	2.7	1.6	98	80
APR									
06...	110	89	11	25	6.5	2.6	.9	95	78
MAY									
05...	15	84	12	24	5.8	2.5	1.0	88	72
JUN									
06...	<1	78	9	22	5.7	2.7	3.0	85	70
JUL									
11...	29	79	6	22	5.9	2.7	.7	89	73
AUG									
10...	71	86	10	24	6.3	3.0	.8	92	75
31...	55	84	5	23	6.5	2.9	1.0	96	79

B Results based upon colony counts outside the ideal range.

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)
OCT									
13...	3.9	7.1	.8	.2	.5	97	89	5	.01
NOV									
17...	1.0	8.9	2.4	.1	5.9	100	98	0	.01
DEC									
08...	1.5	11	1.0	.1	5.3	100	96	0	.00
JAN									
10...	1.5	9.0	1.9	.1	6.4	108	101	2	.02
FEB									
08...	1.0	12	1.5	.1	5.7	103	103	0	.00
MAR									
09...	1.4	11	3.6	.1	5.5	103	104	0	.01
APR									
06...	2.4	11	.9	.1	6.0	97	100	0	.00
MAY									
05...	2.0	9.0	.7	.1	5.7	90	92	5	.01
JUN									
06...	1.1	9.3	3.7	.2	4.1	94	93	0	.01
JUL									
11...	.7	10	1.3	.1	5.7	92	92	8	.01
AUG									
10...	1.5	8.5	1.3	.1	5.8	98	95	0	.02
31...	1.0	9.1	1.1	.1	6.2	84	97	0	.01

DATE	TOTAL NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT									
13...	.00	.01	.02	.15	.01	.01	3	213	85
NOV									
17...	.00	.01	.04	.14	.01	.00	1	55	73
DEC									
08...	.00	.00	.01	.13	.00	.00	0	.00	76
JAN									
10...	.00	.02	.04	.15	.02	.01	2	67	68
FEB									
08...	.00	.00	.03	.16	.01	.00	2	73	69
MAR									
09...	.00	.01	.03	.13	.03	.01	1	84	98
APR									
06...	.00	.00	.04	.19	.02	.00	2	77	98
MAY									
05...	.00	.01	.06	.23	.02	.00	4	212	100
JUN									
06...	.00	.01	.07	.18	.05	.04	2	111	99
JUL									
11...	.00	.01	.05	.19	.01	.00	2	60	89
AUG									
10...	.00	.02	.02	.14	.01	.00	8	294	91
31...	.00	.01	.04	.20	.02	.00	2	63	93

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT												
13...	1430	2	2	<10	1	0	0	<50	0	10	6	80
JAN												
10...	1230	1	1	<10	5	0	0	<50	0	<10	4	250
APR												
06...	1100	1	0	<10	2	0	0	<50	0	70	7	120
JUL												
11...	1510	1	1	<10	2	0	0	<50	0	40	11	100

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT												
13...	10	<100	0	10	10	.0	.0	0	0	30	20	1.5
JAN												
10...	20	<100	2	0	0	.0	.0	0	0	20	20	1.4
APR												
06...	0	100	7	10	10	.0	.0	0	0	60	20	1.8
JUL												
11...	10	<100	12	8	4	.1	.0	0	0	70	20	2.3

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO AUGUST 1977

DATE	OCT 13,76		NOV 17,76		DEC 8,76		JAN 10,77		FEB 8,77	
TIME	1430		1030		0845		1230		1330	
TOTAL CELLS/ML	850		700		1700		2600		5500	
DIVERSITY: DIVISION	1.1		1.0		1.3		1.4		0.3	
.CLASS	1.2		1.0		1.3		1.4		0.3	
..ORDER	1.5		1.2		1.6		1.7		0.7	
...FAMILY	2.5		1.3		1.8		1.8		0.7	
....GENUS	2.7		1.5		1.8		2.0		0.8	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	13	2	27	4	110	6	270	10	350	6
....CHODATELLA	--	-	--	-	--	-	*	0	--	-
....DICTYOSPHAERIUM	--	-	33	5	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	*	0	--	-
....SCENEDESMUS	10	2	--	-	--	-	--	-	--	-
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	-	--	-	--	-	--	-	--	-
...PALMELLACEAE										
....GLOEOCYSTIS	10	2	--	-	--	-	--	-	--	-
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	--	-
..ULOTRICHALES										
...MICROSPORACEAE										
....CYLINDROCAPSA	--	-	5	1	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	9	1	*	0	*	0	*	0	--	-
..ZYGNEMATALES										
...ZYGNEMATACEAE										
....MOUGEOTIA	--	-	--	-	*	0	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	39	5	11	2	350#	20	900#	35	4700#	86
....MELOSIRA	35	4	25	4	--	-	*	0	--	-
....STEPHANODISCUS	4	1	16	2	--	-	26	1	--	-
...RHIZOSOLENIACEAE										
....RHIZOSOLENIA	--	-	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	13	1	36	1	--	-
....COCCONEIS	4	1	--	-	13	1	*	0	--	-
...CYMBELLACEAE										
....AMPHORA	4	1	--	-	--	-	--	-	--	-
....CYMBELLA	*	0	*	0	--	-	*	0	--	-
....EPITHEMIA	*	0	--	-	--	-	*	0	--	-
....RHOPALODIA	--	-	*	0	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	4	1	--	-	--	-	*	0	--	-
...EUNOTIACEAE										
....EUNOTIA	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	70	8	--	-	26	1	47	2	400	7
....FRAGILARIA	13	2	5	1	--	-	57	2	--	-
....SYNEDRA	9	1	8	1	--	-	*	0	69	1
...NAVICULACEAE										
....NAVICULA	13	2	*	0	64	4	*	0	--	-
...NITZSCHIACEAE										
....NITZSCHIA	9	1	5	1	45	3	*	0	--	-
...TABELLARIACEAE										
....TABELLARIA	*	0	*	0	--	-	--	-	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....DINOBRYON	9	1	--	-	*	0	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%
SAMPLING METHOD: EDI

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO AUGUST 1977

DATE TIME	OCT 13,76 1430		NOV 17,76 1030		DEC 8,76 0845		JAN 10,77 1230		FEB 8,77 1330	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	11	2	--	-	--	-	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	2400#	28	--	-	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	3300#	39	5400#	77	11000#	62	12000#	46	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	13	1	--	-	--	-
...CRYPTOMONODACEAE										
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	-	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..GYMNODINIALES										
...GYMNODINIACEAE										
....GYMNODINIUM	--	-	--	-	--	-	--	-	--	-
..PERIDINIALES										
...CERATIACEAE										
....CERATIUM	--	-	--	-	--	-	--	-	--	-
...GLENODINIACEAE										
....GLENODINIUM	*	0	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

SAMPLING METHOD: EDI

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO AUGUST 1977

DATE	MAY 5,77		JUN 6,77		JUL 11,77		AUG 10,77		AUG 31,77	
TIME	1400		1730		1510		1700		1730	
TOTAL CELLS/ML	4700		2900		6100		1700		750	
DIVERSITY: DIVISION	0.2		0.6		0.8		1.2		1.6	
.CLASS	1.1		0.6		0.8		1.3		1.7	
..ORDER	1.5		1.3		1.1		1.6		2.4	
...FAMILY	2.2		2.1		1.8		2.4		2.9	
....GENUS	2.2		2.7		2.0		2.6		3.1	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	*	0	--	-	6	1
...OOCYSTACEAE										
....ANKISTRODESMUS	49	1	250	9	84	1	10	1	55	7
....CHODATELLA	--	-	--	-	*	0	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	*	0	*	0	8	1
....OOCYSTIS	--	-	--	-	33	1	48	3	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	6	1
....TETRAEDRON	--	-	--	-	--	-	*	0	13	2
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	33	1	19	1	80	11
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	-	--	-	--	-	16	1	25	3
...PALMELLACEAE										
....GLOEOCYSTIS	--	-	--	-	--	-	67	4	--	-
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	21	3
..ULOTRICHALES										
...MICROSPORACEAE										
....CYLINDROCAPSA	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	--	-	*	0	--	-	--	-
..ZYGNEMATALES										
...ZYGNEMATACEAE										
....MOUGEOTIA	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	280	6	270	9	67	1	48	3	130#	17
....MELOSIRA	49	1	340	12	84	1	210	13	--	-
....STEPHANODISCUS	--	-	--	-	*	0	10	1	--	-
...RHIZOSOLENIACEAE										
....RHIZOSOLENIA	170	4	--	-	*	0	--	-	17	2
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	35	1	--	-	*	0	--	-	--	-
....COCCONEIS	--	-	*	0	*	0	--	-	--	-
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	--	-	--	-
....CYMBELLA	--	-	28	1	*	0	--	-	--	-
....EPITHEMIA	--	-	--	-	--	-	--	-	--	-
....RHOPALODIA	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	49	1	57	2	*	0	--	-	--	-
...EUNOTIACEAE										
....EUNOTIA	35	1	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	1500#	31	1200#	41	42	1	--	-	--	-
....FRAGILARIA	--	-	270	9	480	8	*	0	--	-
....SYNEDRA	--	-	*	0	42	1	10	1	6	1
...NAVICULACEAE										
....NAVICULA	35	1	--	-	*	0	--	-	13	2
...NITZSCHIACEAE										
....NITZSCHIA	380	8	310	11	--	-	110	7	34	4
...TABELLARIACEAE										
....TABELLARIA	--	-	71	2	--	-	--	-	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....DINOBRYON	2100#	44	--	-	50	1	19	1	6	1

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
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SAMPLING METHOD: EDI

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO AUGUST 1977

DATE TIME	MAY 5,77 1400		JUN 6,77 1730		JUL 11,77 1510		AUG 10,77 1700		AUG 31,77 1730	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	*	--	*	100	2	--	*	76	10
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	*	--	*	11000#	10	--	*	--	*
....ANABAENOPSIS	--	*	--	*	--	*	6500#	27	--	*
...OSCILLATORIACEAE										
....OSCILLATORIA	--	*	85	3	34000#	63	6450#	39	2600#	34
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	*	--	*	--	*	--	*	--	*
...CRYPTOMONADACEAE										
....CRYPTOMONAS	--	*	--	*	--	*	--	*	6	1
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	*	--	*	6	0	--	*	--	*
PYRROPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..GYMNODINIALES										
...GYMNODINIACEAE										
....GYMNODINIUM	35	1	--	*	--	*	--	*	--	*
..PERIDINIALES										
...CERATIACEAE										
....CERATIUM	--	*	--	*	--	*	--	*	6	1
...GLENODINIACEAE										
....GLENODINIUM	--	*	--	*	--	*	--	*	--	*

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

SAMPLING METHOD: EDI

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-B PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	CHLOR-A PERI-PHYTON CHROMO-GRAPHIC FLUOROM (MG/M2)	LENGTH OF EXPO-SURE (DAYS)
AUG 31...	1730	800	1.07	2.44	.006	.520	21

SAMPLING METHOD: Polyethelene Strip.

PEND OREILLE RIVER BASIN

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	167	165	167	158	156	157	189	187	188	166	165	165
2	169	168	169	159	157	158	191	189	189	[illegible]	[illegible]	[illegible]
3	170	168	169	[illegible]	[illegible]	158	192	190	191	161	161	161
4	170	168	169	159	158	158	194	193	193	161	160	160
5	172	170	170	159	156	158	196	195	196	160	159	159
6	173	170	171	160	157	157	198	196	197	159	157	158
7	173	172	172	158	157	158	198	198	198	158	157	157
8	176	176	176	159	152	158	200	199	199	157	156	156
9	---	---	---	160	158	159	198	197	197	157	156	156
10	---	---	---	159	159	159	198	196	197	155	154	154
11	---	---	---	161	159	160	196	195	195	156	155	156
12	---	---	---	161	160	161	194	193	193	158	157	157
13	---	---	---	162	162	161	193	193	193	160	159	160
14	149	149	149	163	162	162	192	191	191	161	160	161
15	149	149	149	164	161	162	190	189	190	163	162	163
16	150	149	150	164	163	163	190	187	188	164	163	164
17	149	148	149	165	163	163	187	185	186	164	163	164
18	148	146	147	166	163	164	186	185	185	165	163	163
19	147	146	147	168	165	166	185	183	184	164	163	164
20	147	146	147	171	167	168	183	181	182	165	162	163
21	149	147	148	171	170	170	182	181	181	164	162	162
22	149	148	149	172	172	172	181	180	180	164	162	163
23	150	149	150	174	174	174	179	178	179	164	162	163
24	152	150	151	177	176	176	178	177	178	165	164	165
25	152	151	152	178	177	178	177	176	176	168	166	167
26	153	152	152	180	179	180	175	174	174	170	168	169
27	154	153	153	182	181	181	174	173	173	172	171	171
28	155	154	154	184	183	183	172	171	172	177	172	172
29	156	154	155	186	185	185	171	170	171	173	172	173
30	156	156	156	188	187	187	169	168	168	174	172	173
31	157	156	157	---	---	---	167	166	166	176	174	175
MONTH	176	146	157	188	152	167	200	166	185	177	154	163

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	178	176	177	---	---	---	184	182	183	159	155	156
2	179	177	178	---	---	---	184	181	182	157	154	155
3	180	179	179	---	---	---	---	---	---	155	152	153
4	181	180	180	---	---	---	---	---	---	153	149	150
5	183	182	182	---	---	---	---	---	---	149	146	147
6	184	183	183	---	---	---	---	---	---	148	144	145
7	186	184	185	---	---	---	---	---	---	145	143	144
8	187	186	186	---	---	---	---	---	---	153	145	147
9	188	186	187	198	194	195	---	---	---	159	152	155
10	---	---	---	194	192	193	---	---	---	161	158	160
11	---	---	---	194	192	193	---	---	---	160	159	159
12	---	---	---	192	191	191	---	---	---	159	156	158
13	---	---	---	190	189	190	---	---	---	159	156	156
14	---	---	---	190	188	189	185	181	183	155	153	154
15	---	---	---	189	189	189	183	181	182	155	154	154
16	---	---	---	189	187	188	182	177	181	156	154	155
17	---	---	---	188	185	187	180	175	178	158	155	156
18	---	---	---	188	185	186	180	176	179	157	155	156
19	---	---	---	186	184	185	180	177	179	158	155	156
20	---	---	---	186	183	185	180	176	179	158	157	158
21	---	---	---	186	185	186	179	176	178	159	157	158
22	---	---	---	186	185	185	179	175	177	160	157	158
23	---	---	---	187	185	185	178	174	177	161	159	160
24	---	---	---	186	185	185	177	174	176	162	158	161
25	---	---	---	185	183	183	176	172	175	163	160	161
26	---	---	---	184	183	183	175	172	174	163	161	162
27	---	---	---	185	184	184	173	169	171	164	160	162
28	---	---	---	185	183	184	170	166	167	164	161	164
29	---	---	---	185	183	184	166	162	164	165	161	164
30	---	---	---	185	183	184	163	159	160	167	162	165
31	---	---	---	185	182	184	---	---	---	167	165	166
MONTH	188	176	182	198	182	187	185	159	176	167	143	157

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	167	165	167	165	161	163	160	156	158	---	---	---
2	168	165	167	164	161	163	163	158	160	---	---	---
3	169	166	167	163	161	162	161	158	160	---	---	---
4	168	164	166	163	161	162	162	159	160	---	---	---
5	166	162	164	163	160	162	163	159	161	---	---	---
6	165	163	164	165	160	162	165	160	161	---	---	---
7	164	162	163	166	158	162	163	160	162	---	---	---
8	163	157	159	166	160	162	164	160	162	165	159	161
9	159	155	157	166	160	162	165	160	162	164	159	161
10	164	158	160	166	160	163	167	161	163	165	160	161
11	166	162	164	177	160	164	166	161	163	166	160	162
12	168	165	166	166	161	163	168	161	164	165	161	162
13	168	165	166	167	160	163	170	162	164	166	160	162
14	167	165	166	---	---	---	168	161	165	166	161	163
15	166	163	164	---	---	---	168	161	165	168	161	163
16	164	162	162	---	---	---	169	162	165	167	162	163
17	162	160	161	---	---	---	169	163	165	172	163	164
18	162	159	160	---	---	---	169	164	166	169	162	164
19	163	159	161	---	---	---	169	164	166	169	162	164
20	164	159	161	164	158	161	170	164	166	171	161	164
21	164	160	162	163	158	160	---	---	---	167	162	164
22	164	160	162	163	157	159	---	---	---	168	162	164
23	164	161	162	162	156	158	---	---	---	170	163	165
24	164	161	163	162	158	159	---	---	---	170	164	165
25	164	160	162	163	156	158	---	---	---	169	163	165
26	164	160	162	160	155	157	---	---	---	166	163	164
27	164	161	162	159	154	156	---	---	---	166	163	164
28	165	162	163	158	153	155	---	---	---	169	164	165
29	165	163	164	157	152	154	---	---	---	167	163	164
30	165	163	164	156	152	154	---	---	---	166	163	164
31	---	---	---	160	154	156	---	---	---	---	---	---
MONTH	169	155	163	177	152	160	170	156	163	172	159	163
YEAR	200	143	168									

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	17.0	17.0	17.0	10.5	10.0	10.5	4.0	3.5	3.5	2.0	2.0	2.0
2	17.0	17.0	17.0	10.0	10.0	10.0	3.5	3.5	3.5	2.0	1.5	2.0
3	17.0	16.5	16.5	10.0	10.0	10.0	4.0	3.5	3.5	1.5	1.5	1.5
4	16.5	16.0	16.5	10.0	10.0	10.0	4.0	3.0	3.5	1.5	1.0	1.0
5	16.0	15.5	16.0	10.0	9.5	10.0	3.5	3.0	3.5	1.0	1.0	1.0
6	15.5	15.0	15.0	10.0	9.5	9.5	3.0	2.5	3.0	1.0	0.5	0.5
7	15.0	14.5	14.5	9.5	9.5	9.5	3.0	2.5	2.5	0.5	0.5	0.5
8	14.5	14.5	14.5	9.5	9.5	9.5	3.0	2.5	2.5	0.5	0.0	0.0
9	---	---	---	9.5	9.0	9.5	3.0	2.5	2.5	0.0	0.0	0.0
10	---	---	---	9.5	9.0	9.0	2.5	2.5	2.5	0.0	0.0	0.0
11	---	---	---	9.0	8.5	9.0	2.5	2.5	2.5	0.0	0.0	0.0
12	---	---	---	9.0	8.5	8.5	2.5	2.5	2.5	0.0	0.0	0.0
13	---	---	---	8.5	8.0	8.5	3.0	2.5	2.5	0.0	0.0	0.0
14	14.5	14.0	14.0	8.5	8.0	8.0	3.0	2.5	3.0	0.5	0.0	0.0
15	14.0	14.0	14.0	8.0	7.5	8.0	3.0	3.0	3.0	0.5	0.0	0.0
16	14.0	13.5	13.5	7.5	7.5	7.5	3.0	2.5	2.5	0.5	0.0	0.5
17	13.5	13.0	13.0	7.5	7.0	7.0	2.5	2.5	2.5	0.0	0.0	0.0
18	13.0	12.5	13.0	7.0	6.5	6.5	3.0	2.5	2.5	0.5	0.0	0.0
19	13.0	12.5	12.5	6.5	6.0	6.5	3.0	2.5	3.0	0.5	0.0	0.0
20	12.5	12.0	12.5	6.0	5.5	6.0	3.0	3.0	3.0	0.5	0.0	0.0
21	12.0	12.0	12.0	6.0	5.0	5.5	3.0	3.0	3.0	0.0	0.0	0.0
22	12.0	11.5	11.5	5.5	5.0	5.0	3.0	3.0	3.0	0.0	0.0	0.0
23	11.5	11.0	11.0	5.0	4.5	4.5	3.5	3.0	3.5	0.5	0.0	0.0
24	11.0	10.5	11.0	5.0	4.5	4.5	3.0	2.5	2.5	0.5	0.0	0.5
25	10.5	10.5	10.5	5.0	5.0	5.0	2.5	2.5	2.5	1.0	0.5	1.0
26	10.5	10.5	10.5	5.0	4.5	5.0	2.5	2.5	2.5	1.0	1.0	1.0
27	10.5	10.5	10.5	5.0	4.5	4.5	2.5	2.5	2.5	1.5	1.0	1.0
28	10.5	10.5	10.5	4.5	4.5	4.5	2.5	2.0	2.5	1.5	1.0	1.0
29	10.5	10.5	10.5	4.5	4.0	4.5	2.5	2.0	2.0	1.0	0.5	1.0
30	10.5	10.5	10.5	4.0	3.5	4.0	2.0	2.0	2.0	1.0	0.5	0.5
31	10.5	10.5	10.5	---	---	---	2.0	2.0	2.0	1.0	0.5	0.5
MONTH	17.0	10.5	13.0	10.5	3.5	7.5	4.0	2.0	3.0	2.0	0.0	0.5

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1.0	0.5	0.5	---	---	---	5.5	5.0	5.0	12.0	11.0	11.5
2	1.0	0.5	1.0	---	---	---	5.0	5.0	5.0	11.5	11.5	11.5
3	1.0	0.5	1.0	---	---	---	---	---	---	12.0	11.5	11.5
4	1.0	0.5	1.0	---	---	---	---	---	---	12.0	11.5	12.0
5	1.5	1.0	1.0	---	---	---	---	---	---	12.5	12.0	12.5
6	1.0	1.0	1.0	---	---	---	---	---	---	13.0	12.5	12.5
7	1.5	1.0	1.0	---	---	---	---	---	---	13.0	12.0	12.5
8	1.0	1.0	1.0	---	---	---	---	---	---	12.0	12.0	12.0
9	1.5	1.0	1.0	4.5	4.0	3.5	---	---	---	12.0	12.0	12.0
10	---	---	---	4.5	4.0	4.0	---	---	---	12.0	11.5	12.0
11	---	---	---	4.5	4.0	4.5	---	---	---	12.5	12.0	12.5
12	---	---	---	4.5	4.5	4.5	---	---	---	12.5	12.0	12.5
13	---	---	---	4.5	4.0	4.0	8.0	8.0	8.0	12.0	12.0	12.0
14	---	---	---	4.0	4.0	4.0	8.0	8.0	8.0	12.0	11.5	11.5
15	---	---	---	4.0	3.5	4.0	8.5	8.0	8.0	11.5	11.5	11.5
16	---	---	---	4.5	4.0	4.0	8.5	8.0	8.5	12.0	11.5	12.0
17	---	---	---	4.0	3.5	4.0	9.0	8.5	8.5	12.0	12.0	12.0
18	---	---	---	4.0	4.0	4.0	9.0	8.5	8.5	12.5	12.0	12.0
19	---	---	---	4.0	4.0	4.0	9.0	8.5	9.0	12.5	12.0	12.0
20	---	---	---	4.0	4.0	4.0	9.5	8.5	9.0	12.0	12.0	12.0
21	---	---	---	4.0	4.0	4.0	9.5	9.0	9.0	12.0	11.5	11.5
22	---	---	---	4.0	4.0	4.0	9.5	9.0	9.5	12.5	12.0	12.0
23	---	---	---	4.0	4.0	4.0	10.0	9.5	9.5	12.5	12.0	12.0
24	---	---	---	4.0	4.0	4.0	10.5	9.5	10.0	12.5	12.0	12.5
25	---	---	---	4.5	4.0	4.0	10.5	10.0	10.5	13.0	12.5	12.5
26	---	---	---	4.5	4.5	4.5	10.5	10.5	10.5	12.5	12.5	12.5
27	---	---	---	4.5	4.0	4.5	11.0	10.0	10.5	12.5	12.0	12.5
28	---	---	---	5.0	4.5	4.5	11.5	10.5	11.0	13.0	12.0	12.5
29	---	---	---	5.0	4.5	5.0	11.5	11.0	11.0	13.0	12.5	12.5
30	---	---	---	5.0	5.0	5.0	11.5	11.0	11.0	13.5	12.5	13.0
31	---	---	---	5.0	5.0	5.0	---	---	---	13.0	13.0	13.0
MONTH	1.5	0.5	1.0	5.0	3.5	4.0	11.5	5.0	9.0	13.5	11.0	12.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.0	13.0	13.0	21.0	20.5	20.5	22.0	22.0	22.0	---	---	---
2	13.5	13.0	13.0	21.0	20.5	20.5	22.0	21.5	22.0	---	---	---
3	13.5	13.0	13.5	20.5	20.5	20.5	22.5	22.0	22.0	---	---	---
4	14.0	13.5	13.5	20.5	20.5	20.5	22.0	22.0	22.0	---	---	---
5	14.0	13.5	14.0	20.5	20.0	20.0	22.5	22.0	22.5	---	---	---
6	14.5	14.0	14.0	20.5	19.5	20.0	22.5	22.0	22.5	---	---	---
7	15.5	14.5	15.0	20.5	19.5	20.0	22.5	22.5	22.5	19.0	18.5	19.0
8	16.0	15.5	15.5	20.0	19.5	19.5	22.5	22.5	22.5	19.0	18.5	18.5
9	16.5	16.0	16.0	20.0	19.5	19.5	23.0	22.0	22.5	19.0	18.5	18.5
10	17.0	16.0	16.5	19.5	19.0	19.5	23.0	22.5	22.5	19.0	18.5	18.5
11	17.0	16.5	17.0	19.5	19.0	19.0	23.0	22.5	22.5	18.5	18.0	18.5
12	17.0	17.0	17.0	19.5	19.0	19.5	23.0	22.0	22.5	18.5	18.0	18.5
13	17.0	16.5	17.0	19.5	19.0	19.5	23.0	22.5	23.0	18.5	18.0	18.5
14	17.0	16.5	17.0	19.5	18.5	19.0	23.0	22.5	23.0	18.5	18.0	18.0
15	17.0	16.5	17.0	20.0	18.5	19.5	23.0	22.5	23.0	18.0	17.5	18.0
16	17.0	17.0	17.0	19.5	19.0	19.5	23.0	22.5	23.0	18.0	17.5	18.0
17	17.5	17.0	17.5	20.0	19.5	19.5	23.0	22.5	22.5	17.5	17.5	17.5
18	18.0	17.5	18.0	20.0	19.0	19.5	23.0	22.5	22.5	17.5	17.5	17.5
19	18.5	18.0	18.0	20.0	19.0	19.5	23.0	22.5	22.5	17.5	17.0	17.5
20	18.5	18.0	18.5	20.0	19.0	19.5	23.0	22.5	23.0	17.0	16.5	17.0
21	19.0	18.5	18.5	20.5	19.5	20.0	---	---	---	16.5	16.5	16.5
22	19.5	18.5	19.0	20.5	19.5	20.0	---	---	---	16.5	16.0	16.0
23	19.5	19.0	19.5	20.5	20.0	20.0	---	---	---	16.0	16.0	16.0
24	20.0	19.5	19.5	21.0	19.5	20.5	---	---	---	16.0	15.5	16.0
25	20.0	19.5	20.0	21.0	20.0	21.0	---	---	---	15.5	15.5	15.5
26	20.5	20.0	20.0	21.5	20.5	21.0	---	---	---	15.5	15.0	15.5
27	20.5	20.0	20.0	21.5	21.0	21.5	---	---	---	15.0	15.0	15.0
28	20.5	20.0	20.0	22.0	21.0	21.5	---	---	---	15.0	14.5	15.0
29	20.5	20.0	20.5	22.0	21.5	22.0	---	---	---	14.5	14.5	14.5
30	20.5	20.0	20.5	22.0	22.0	22.0	---	---	---	14.5	14.0	14.5
31	---	---	---	22.0	21.5	22.0	---	---	---	---	---	---
MONTH	20.5	13.0	17.0	22.0	18.5	20.0	23.0	21.5	22.5	19.0	14.0	17.0
YEAR	23.0	0.0	11.0									

12398900 SALMO RIVER NEAR SALMO, BRITISH COLUMBIA

LOCATION.--Lat 49°04'07", long 117°16'37", on Salmo-Nelway highway, 500 ft (152 m) downstream from South Fork Salmo River and 10 mi (16.1 km) south of Salmo, and at mile 7.3 (11.7 km).

DRAINAGE AREA.--476 mi² (1,233 km²).

PERIOD OF RECORD.--October 1960 to current year in reports of Geological Survey. March 1949 to September 1960 in reports of Department of Northern Affairs and National Resources, Canada.

GAGE.--Water-stage recorder.

COOPERATION.--Records furnished by Department of the Environment, Canada.

AVERAGE DISCHARGE.--28 years, 1,130 ft³/s (32.00 m³/s) 818,700 acre-ft/yr (1,010 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,300 ft³/s (462 m³/s) June 2, 1968; minimum, 50 ft³/s (1.42 m³/s) Dec. 26, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,810 ft³/s (165 m³/s) June 8, gage height, 5.54 ft (1.689 m); minimum daily, 150 ft³/s (4.25 m³/s) Jan. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	294	297	202	154	174	199	244	3090	1750	515	214	225
2	360	268	199	150	168	197	241	3700	2150	492	207	212
3	458	252	195	165	169	197	241	4510	1770	479	203	224
4	347	251	171	164	168	196	253	3750	2070	461	201	249
5	337	249	176	166	171	198	318	2910	2250	460	199	363
6	330	243	196	166	168	202	445	2430	2580	453	195	281
7	319	237	196	165	169	210	659	2250	3030	427	192	251
8	307	233	195	165	168	249	1000	2260	4090	400	188	254
9	300	229	194	165	172	248	1190	2310	2560	379	183	234
10	293	225	194	164	173	239	1010	2650	2030	378	182	218
11	287	221	194	163	181	231	883	2990	1830	387	178	208
12	281	212	191	163	195	226	870	2460	1760	490	175	202
13	275	204	186	163	197	226	975	2200	1710	465	172	197
14	268	192	190	163	189	210	946	2080	1540	458	175	193
15	265	206	190	163	184	211	885	1980	1450	400	175	220
16	262	225	192	162	183	206	841	1860	1360	361	169	223
17	256	238	193	167	183	202	813	1780	1260	372	169	315
18	252	265	192	196	182	197	774	2020	1180	346	164	313
19	250	232	186	201	181	201	725	1840	1110	326	160	292
20	250	214	167	181	186	197	690	1810	1060	310	158	353
21	246	205	164	178	193	199	678	1960	995	296	157	427
22	243	210	174	178	207	205	688	2100	913	284	156	429
23	238	208	188	176	216	221	951	2130	846	270	155	383
24	241	216	187	175	206	257	1850	2260	784	260	258	386
25	264	224	186	168	201	243	3230	1960	750	260	405	416
26	250	197	187	176	201	240	4030	1880	702	297	318	388
27	244	167	196	173	197	245	3200	1760	659	265	319	362
28	245	188	174	172	195	238	2840	1600	614	251	280	345
29	274	210	160	156	---	237	2820	1490	575	244	320	356
30	250	209	156	165	---	242	3000	1400	541	233	287	354
31	262	---	153	173	---	245	---	1440	---	225	245	---
TOTAL	8748	6729	5724	5236	5177	6814	37290	70860	45919	11244	6559	8873
MEAN	282	224	185	169	185	220	1243	2286	1531	363	212	296
MAX	458	297	202	201	216	257	4030	4510	4090	515	405	429
MIN	238	167	153	150	168	196	241	1400	541	225	155	193
AC-FT	17350	13350	11350	10390	10270	13520	73960	140600	91080	22300	13010	17600

CAL YR 1976 TOTAL 451957 MEAN 1235 MAX 8380 MIN 153 AC-FT 896500
WTR YR 1977 TOTAL 219173 MEAN 600 MAX 4510 MIN 150 AC-FT 434700

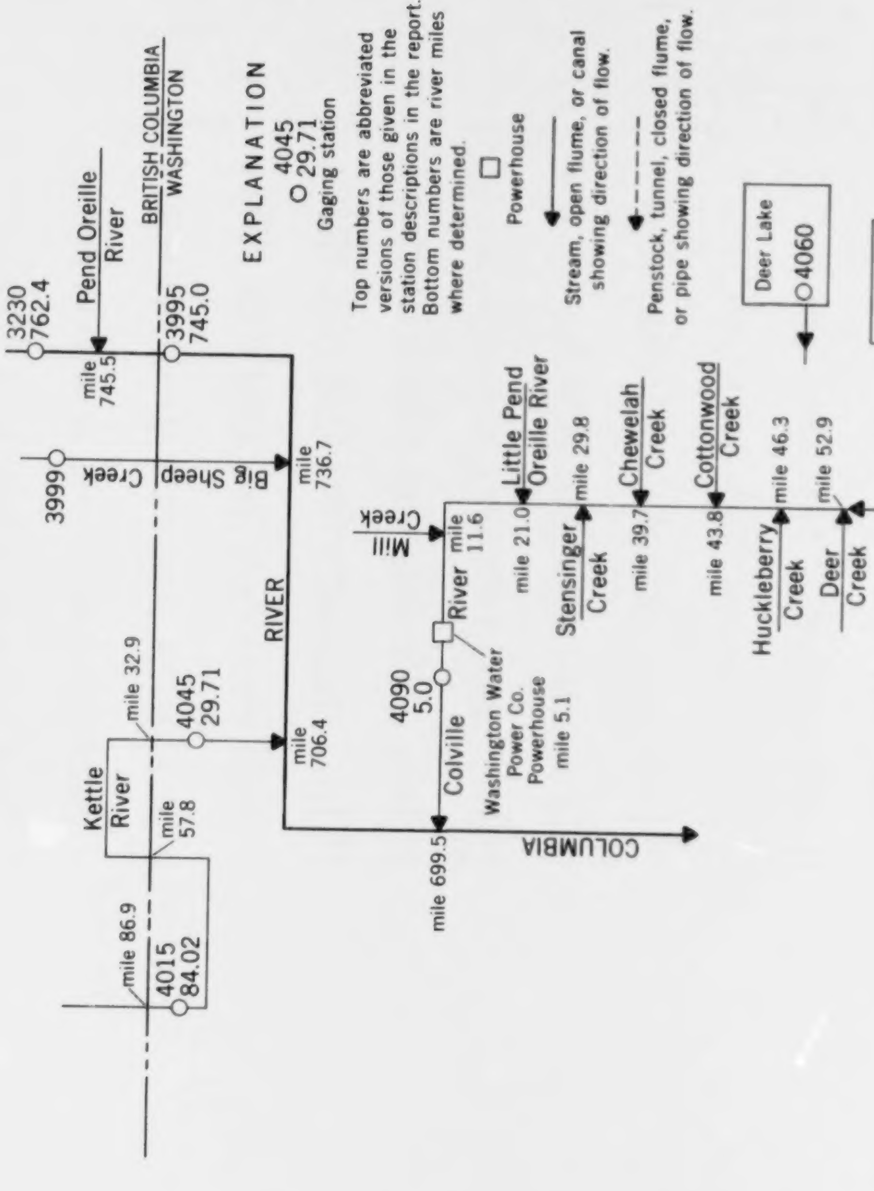
3230
762.4
Pend Oreille River
mile 745.5
3995
745.0
BRITISH COLUMBIA
WASHINGTON
3999
Big Sheep Creek
mile 736.7
RIVER
Kettle River
mile 32.9
4045
29.71
mile 706.4
mile 57.8
mile 86.9
4015
84.02
COLUMBIA
mile 699.5
Colville River
4090
5.0
Washington Water Power Co. Powerhouse mile 5.1
Mill Creek
mile 11.6
Little Pend Oreille River
mile 21.0
Stensinger Creek
mile 29.8
Chewelah Creek
mile 39.7
Cottonwood Creek
mile 43.8
Huckleberry Creek
mile 46.3
Deer Creek
mile 52.9
Sheep Creek
Deer Lake
4060
Loon Lake
4065
EXPLANATION
4045
29.71
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 7. Gaging stations in Columbia River basin from International Boundary to Colville River.

12399500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY
(International gaging station)

LOCATION.--Lat 49°00'03", long 117°37'42", in NE¼SE¼ sec.4, T.40 N., R.41 E., Stevens County, Hydrologic Unit 17020001, on left bank at international boundary, 0.5 mi (0.8 km) downstream from Pend Oreille River, and at mile 745.0 (1,198.7 km).

DRAINAGE AREA.--59,700 mi² (154,600 km²), approximately.

PERIOD OF RECORD.--October 1937 to current year. Prior to March 1938 monthly discharge only, published in WSP 1316.

REVISED RECORDS.--WSP 932: 1937(m), 1938(M), 1939(m).

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation 1937 datum). Prior to Apr. 27, 1939, nonrecording gage at same site and datum. Since May 31, 1942, auxiliary water-stage recorder and Jan. 1 to May 30, 1942, auxiliary nonrecording gage 2.2 mi (3.5 km) downstream from base gage at mean sea level datum.

REMARKS.--Records excellent. Flow regulated by eight major reservoirs and by numerous smaller reservoirs and powerplants. It was estimated that 346,700 acres (1,400 km²) were under irrigation in the United States in 1946 with diversions for irrigation of an additional 35,000 acres (142 km²) in Canada.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--40 years, 100,800 ft³/s (2,855 m³/s), 73,030,000 acre-ft/yr (90,000 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 550,100 ft³/s (15,600 m³/s) June 12, 1948, elevation, 1,338.13 ft (407.862 m); minimum, 18,000 ft³/s (510 m³/s) Feb. 7, 1954, elevation, 1,289.38 ft (393.003 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a stage of 1,346 ft (410.3 m), from information by Bureau of Reclamation, discharge, 680,000 ft³/s (19,300 m³/s).

A discharge of about 12,900 ft³/s (365 m³/s) occurred Jan. 30 or 31, 1937, based on information from other gaging stations, elevation, 1,287.9 ft (392.55 m), from rating curve extended below 1,291.6 ft (393.68 m) and may have been as low sometime in January 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 136,000 ft³/s (3,850 m³/s) June 8, elevation, 1,307.17 ft (398.425 m); minimum, 20,400 ft³/s (578 m³/s) Apr. 14, elevation, 1,289.95 ft (393.177 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97500	96100	105000	99300	88700	63600	60000	64400	103000	88100	100000	77100
2	97600	88800	105000	95500	91100	70900	60600	70000	107000	87100	91800	76800
3	95800	87300	95800	80500	91600	75400	56600	82400	114000	89700	91500	71700
4	95500	85600	90400	86800	90000	79000	59900	85400	120000	89100	90600	73700
5	101000	84100	83100	83800	88700	77000	71000	83800	119000	88700	88100	83100
6	104000	85100	103000	78000	84800	73100	81100	79900	114000	81500	86000	87400
7	103000	80500	106000	80900	81300	74000	87600	74300	113000	81200	86200	85800
8	102000	86400	104000	77900	75200	73400	88900	79700	127000	83700	96200	82900
9	102000	99100	106000	90500	73800	73400	88400	73200	127000	82000	91900	81900
10	101000	92800	104000	102000	74900	80100	81400	82600	123000	78500	85800	80900
11	98700	91700	97200	103000	76300	83400	69300	91200	120000	83300	81900	80400
12	97800	90900	92900	103000	86300	79500	43400	90900	109000	85100	79000	78800
13	100000	88300	95300	102000	83300	72200	21500	89300	100000	86000	77200	80100
14	102000	87600	100000	99400	66500	69800	22000	95700	85400	87400	77200	80300
15	101000	89000	98900	95600	60100	72000	39600	97000	85600	90700	82700	83500
16	102000	88200	97700	95600	60000	73700	50500	94600	79600	90500	78900	82300
17	100000	86500	99300	101000	59700	72300	61400	93400	80800	84700	79800	81700
18	98700	91000	97300	108000	57800	62000	61800	107000	73900	90000	84100	80400
19	102000	93900	89900	104000	56100	59300	66200	112000	73600	91700	85300	73800
20	100000	93600	80300	102000	55100	57300	61400	111000	92700	87900	88200	73100
21	103000	85500	77600	110000	52400	58400	54800	112000	99600	88300	85800	75700
22	104000	74300	81700	105000	53700	59000	59400	116000	94500	94900	89700	73400
23	104000	70700	83900	94000	57800	58900	59700	113000	92400	96300	86500	74200
24	106000	72900	83400	84500	61000	60900	54400	110000	91800	95300	86500	73100
25	114000	73200	77500	83100	62000	61100	58100	111000	90200	98300	92500	70000
26	116000	71100	79800	79200	61500	60000	62700	119000	92200	95200	95800	62200
27	115000	70600	89700	76500	55500	57500	64200	120000	95800	97500	94200	59600
28	114000	69600	90800	74700	59700	59800	63600	108000	92900	96200	93300	83600
29	116000	88300	91600	73500	---	61000	63100	108000	95700	95800	89400	64500
30	110000	106000	94100	73500	---	58700	64900	104000	99100	97500	81600	64700
31	104000	---	97100	83200	---	59000	---	105000	---	99600	75300	---
TOTAL	3209600	2568700	2898300	2832000	1964900	2095900	1837500	2983800	3011800	2781800	2693000	2276700
MEAN	103500	85620	93490	91350	70180	67610	61250	96250	100400	89740	86870	75890
MAX	116000	106000	106000	110000	91600	83400	88900	120000	127000	99600	100000	87400
MIN	95500	69600	77500	73500	52400	57300	21500	64400	73600	78500	75300	59600
AC-FT	6366000	5095000	5749000	5617000	3897000	4157000	3645000	5918000	5974000	5518000	5342000	4516000

CAL YR 1976 TOTAL 44138300 MEAN 120600 MAX 218000 MIN 68000 AC-FT 87550000
WTR YR 1977 TOTAL 31154000 MEAN 85350 MAX 127000 MIN 21500 AC-FT 61790000

12399900 BIG SHEEP CREEK NEAR ROSSLAND, BRITISH COLUMBIA

LOCATION.--Lat 49°01'00", long 117°56'40", just upstream from bridge on Rossland-Cascade highway, approximately 8 mi (12.9 km) southwest of Rossland.

DRAINAGE AREA.--134 mi² (347 km²).

PERIOD OF RECORD.--October 1960 to current year in reports of Geological Survey. August 1929 to September 1930 and April 1949 to September 1960 in reports of Department of Northern Affairs and National Resources, Canada.

GAGE.--Water-stage recorder. Prior to April 1949, nonrecording gage near present site.

COOPERATION.--Records furnished by Department of the Environment, Canada.

AVERAGE DISCHARGE.--29 years (water years 1930, 1950-77), 197 ft³/s (5.579 m³/s), 142,700 acre-ft/yr (176 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,700 ft³/s (76.5 m³/s) May 12, 1954, gage height, 6.75 ft (2.057 m); minimum, 2.3 ft³/s (0.065 m³/s) Nov. 7, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 932 ft³/s (26.4 m³/s) May 3, gage height, 4.22 ft (1.286 m); minimum daily, 16 ft³/s (0.45 m³/s) Aug. 19-23, Sept. 11-14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	33	23	18	18	18	27	469	299	72	25	18
2	52	32	23	18	18	17	28	494	339	68	23	18
3	54	32	22	19	18	17	30	770	315	64	23	19
4	51	32	23	18	18	17	33	900	332	63	23	20
5	49	31	23	18	18	18	36	730	350	61	23	20
6	48	31	22	18	18	18	41	600	338	60	22	19
7	46	31	22	17	17	18	50	544	340	58	22	18
8	44	30	22	17	17	24	109	542	338	55	21	18
9	43	30	21	17	17	24	190	525	305	52	20	17
10	42	29	21	17	17	23	194	525	274	48	20	17
11	40	29	21	18	18	22	179	569	253	48	19	16
12	38	29	21	18	18	22	171	543	255	50	19	16
13	38	28	21	18	18	22	181	494	250	49	18	16
14	36	27	21	19	18	21	192	460	230	48	18	16
15	35	28	21	19	18	20	185	433	215	44	18	17
16	34	28	21	19	18	20	181	406	206	42	17	17
17	34	29	21	19	18	20	175	378	193	41	17	20
18	33	28	21	20	17	20	167	383	178	39	17	20
19	33	26	21	21	18	20	160	380	166	36	16	19
20	32	24	21	20	18	20	152	362	155	35	16	20
21	32	26	20	20	18	20	144	355	147	34	16	22
22	32	25	20	19	18	20	140	354	137	32	16	20
23	32	24	20	19	18	24	149	350	125	31	16	19
24	33	24	20	19	18	29	201	384	115	30	21	23
25	36	26	20	19	18	27	321	376	108	31	24	22
26	34	22	20	19	18	26	477	354	100	31	23	20
27	34	23	19	19	17	26	486	342	94	29	26	19
28	32	23	18	19	17	26	455	324	89	28	22	19
29	32	23	18	18	---	27	445	317	82	27	22	20
30	33	23	18	18	---	27	459	297	77	26	20	20
31	34	---	18	18	---	28	---	286	---	26	19	---
TOTAL	1193	826	643	574	497	681	5758	14244	6405	1358	622	565
MEAN	38.5	27.5	20.7	18.5	17.8	22.0	192	459	214	43.8	20.1	18.8
MAX	54	33	23	21	18	29	486	900	350	72	26	23
MIN	32	22	18	17	17	17	27	286	77	26	16	16
AC-FT	2370	1640	1280	1140	986	1350	11420	28250	12700	2690	1230	1120

CAL YR 1976 TOTAL 81501 MEAN 223 MAX 1900 MIN 18 AC-FT 161700
WTR YR 1977 TOTAL 33366 MEAN 91.4 MAX 900 MIN 16 AC-FT 66180

NOTE.--Differences between figures published herein and corresponding figures in reports of the Water Survey of Canada are due to variations in automated program techniques.

12400520 COLUMBIA RIVER AT NORTHPORT, WA
(National stream-quality accounting network station)

LOCATION.--Lat 48°55'21", long 117°46'32", in SW¼SW¼ sec.33, T.40 N., R.40 E., Stevens County, Hydrologic Unit 17020001, at State Highway 25 bridge at Northport, 9.9 mi (15.9 km) downstream from gaging station at international boundary, and at mile 735.1 (1,182.8 km).

DRAINAGE AREA.--60,200 mi² (155,900 km²), approximately.

PERIOD OF RECORD.--Water years 1910-11, 1952 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1951 to September 1975, April 1976 to current year.
pH: November 1951 to September 1969.
WATER TEMPERATURES: November 1951 to current year.
SUSPENDED SEDIMENT DISCHARGE: February 1910 to January 1911.

INSTRUMENTATION.--Temperature recorder since October 1974; specific conductance recorder since April 1976.

REMARKS.--Prior to November 1951 published as "at Northport". November 1951 to September 1957 published as 12399500 "at international boundary", October 1957 to September 1963 as "at Northport. October 1963 to September 1973 as "at international boundary."

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 285 micromhos Apr. 2, 1972; minimum, 96 micromhos Aug. 7, 1976.
WATER TEMPERATURES: Maximum, 21.0°C May 14, 19, 1959; minimum, 0.0°C on several days during January in 1960, 1962 and 1963.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 176 micromhos Feb. 24; minimum recorded, 113 micromhos May 3.
WATER TEMPERATURES: Maximum, 20°C Aug. 22; minimum, 2.5°C Jan. 29 to Feb. 2.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./ 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)
OCT										
14...	1300	103000	134	7.8	13.1	1	4	2	--	<1
NOV										
16...	1045	88000	145	7.7	8.7	1	89	--	84	--
DEC										
07...	1200	101000	142	7.9	6.3	2	63	--	20	--
JAN										
19...	1330	103000	148	7.6	3.5	1	<1	--	<1	--
FEB										
07...	1445	83300	162	7.6	3.2	3	2	--	2	--
MAR										
10...	1045	77600	152	7.5	4.0	1	B110	--	1	--
APR										
05...	1415	70100	142	7.0	5.3	2	2	--	1	--
MAY										
04...	1245	90800	122	7.4	8.6	1	240	--	19	--
JUN										
07...	1130	110000	125	8.0	11.4	1	B190	--	4	--
JUL										
12...	1310	86600	121	7.9	15.8	1	330	--	5	--
AUG										
08...	1100	93300	117	8.1	17.8	0	>2000	--	200	--
SEP										
07...	1700	91000	128	7.4	16.0	1	B1000	--	12	--

DATE	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)
OCT									
14...	--	65	13	19	4.2	1.5	.7	63	52
NOV									
16...	81	66	9	20	3.9	1.4	.7	78	57
DEC									
07...	3	63	14	19	3.7	1.3	.7	59	48
JAN									
19...	<1	71	17	21	4.6	1.5	.7	66	54
FEB									
07...	20	73	9	22	4.3	1.5	.7	77	63
MAR									
10...	630	81	16	24	5.0	1.6	.7	79	65
APR									
05...	4	72	12	21	4.7	1.6	.8	73	60
MAY									
04...	B21	67	15	20	4.2	1.4	.8	64	53
JUN									
07...	3	70	14	21	4.2	1.5	.7	68	56
JUL									
12...	180	64	10	19	3.9	1.3	.6	65	53
AUG									
08...	>2000	60	9	18	3.7	1.0	.6	62	51
SEP									
07...	14	67	10	20	4.2	1.4	.7	70	57

B Results based upon colony counts outside the ideal range.

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)
OCT									
14...	1.6	10	.8	.1	4.0	69	72	3	.02
NOV									
16...	2.2	12	.5	.2	4.0	77	77	0	.06
DEC									
07...	1.2	12	.6	.1	4.0	85	70	0	.08
JAN									
19...	2.7	13	.8	.2	4.2	85	79	4	.11
FEB									
07...	3.1	17	.8	.2	4.4	92	89	5	.12
MAR									
10...	4.0	17	1.5	.2	4.4	91	93	0	.10
APR									
05...	12	18	1.3	.1	4.2	87	88	0	.10
MAY									
04...	4.1	16	.8	.2	5.0	75	78	--	.08
JUN									
07...	1.1	13	.8	.1	14	79	89	3	.07
JUL									
12...	1.3	8.9	.9	.1	4.1	73	71	11	.09
AUG									
08...	.8	8.2	.4	.1	3.7	71	66	0	.07
SEP									
07...	4.5	13	.8	.1	4.0	72	79	6	.08

DATE	TOTAL NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT									
14...	.00	.02	.04	.17	.02	.02	4	1110	--
NOV									
16...	.00	.06	.04	.14	.04	.03	2	475	97
DEC									
07...	.00	.08	.03	.14	.01	.00	1	273	88
JAN									
19...	.00	.11	.02	.08	.02	.02	--	--	--
FEB									
07...	.00	.12	.05	.10	.05	.04	8	1000	91
MAR									
10...	.00	.10	.06	.14	.04	.03	1	210	100
APR									
05...	.00	.10	.04	.12	.01	.01	5	946	75
MAY									
04...	.00	.08	.06	.30	.08	.06	7	1720	88
JUN									
07...	.00	.07	.08	.16	.03	.02	12	3560	83
JUL									
12...	.00	.09	.06	.24	.02	.00	2	468	85
AUG									
08...	.01	.08	.03	.11	.04	.02	11	2770	87
SEP									
07...	.00	.08	.06	.12	.06	.05	5	1230	89

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT												
14...	1300	--	1	<10	1	0	0	<50	2	50	14	60
JAN												
19...	1330	1	1	<10	1	0	0	<50	0	10	4	100
APR												
05...	1415	0	0	<10	2	0	0	<50	0	20	9	200
JUL												
12...	1310	0	0	<10	1	10	0	<50	0	20	1	250

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT												
14...	20	100	12	20	10	.0	.0	0	0	130	100	.5
JAN												
19...	20	<100	12	20	10	.2	.0	0	0	60	40	1.3
APR												
05...	30	<100	12	10	10	.1	.0	0	0	60	50	1.4
JUL												
12...	40	<100	5	10	8	.3	.0	0	0	70	40	2.6

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

	OCT 14,76	NOV 16,76	DEC 7,76	JAN 19,77	FEB 7,77
DATE	OCT 14,76	NOV 16,76	DEC 7,76	JAN 19,77	FEB 7,77
TIME	1300	1045	1200	1330	1445
TOTAL CELLS/ML	2500	240	390	770	1400
DIVERSITY: DIVISION	1.0	0.9	1.4	1.1	0.5
.CLASS	1.0	0.9	1.4	1.2	0.5
..ORDER	1.4	1.3	1.8	1.8	0.9
...FAMILY	1.7	1.3	1.9	2.0	1.0
....GENUS	1.8	2.2	2.5	2.4	1.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	36	1	9	4	10	3	31	4	160	12
....CHODATELLA	--	-	--	-	--	-	*	0	--	-
....DICTYOSPHAERIUM	150	6	51#	21	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	3	1	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	--	-	--	-	--	-	--	-
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	-	--	-	--	-	--	-	--	-
...PALMELLACEAE										
....GLOEOCYSTIS	--	-	--	-	--	-	--	-	--	-
....SPHAEROCYSTIS	--	-	--	-	41	10	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CARTERIA	--	-	--	-	--	-	*	0	--	-
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-	14	1
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARIUM	--	-	3	1	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	220	9	3	1	20	5	140#	18	1200#	82
....MELOSIRA	--	-	13	5	8	2	11	1	--	-
....STEPHANODISCUS	--	-	--	-	--	-	17	2	--	-
...RHIZOSOLENIACEAE										
....RHIZOSOLENIA	--	-	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	*	0	*	0	--	-
....COCCONEIS	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	--	-	--	-
....CYMBELLA	--	-	--	-	--	-	*	0	14	1
....EPITHEMIA	36	1	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	41#	17	44	11	8	1	55	4
....FRAGILARIA	1600#	63	110#	45	90#	23	320#	42	--	-
....HANNAEA	--	-	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	8	3	28	7	8	1	*	0
...GOMPHONEMATACEAE										
....GOMPHONEMA	73	3	--	-	--	-	*	0	--	-
...NAVICULACEAE										
....NAVICULA	36	1	--	-	--	-	*	0	--	-
...NITZSCHIACEAE										
....NITZSCHIA	--	-	--	-	3	1	8	1	14	1
...TABELLARIACEAE										
....TABELLARIA	--	-	*	0	--	-	--	-	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...CHROMULINACEAE										
....CHRYSOCOCCUS	--	-	--	-	--	-	--	-	--	-
...OCHROMONADACEAE										
....DINOBRYON	--	-	--	-	--	-	--	-	--	-
....OCHROMONAS	--	-	--	-	--	-	17	2	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	360	15	--	-	150#	38	190#	25	--	-
....PHORMIDIUM	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: EDI

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE	OCT 14,76		NOV 16,76		DEC 7,76		JAN 19,77		FEB 7,77	
TIME	1300		1045		1200		1330		1445	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	3	1	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: EDI

DATE	MAY 4,77		JUN 7,77		JUL 12,77		AUG 8,77		SEP 7,77	
TIME	1245		1130		1310		1100		1700	
TOTAL CELLS/ML	1500		840		4000		350		300	
DIVERSITY: DIVISION	1.5		0.0		0.6		0.7		1.2	
.CLASS	1.5		0.0		0.6		1.3		1.4	
..ORDER	1.9		0.7		0.7		1.9		1.9	
...FAMILY	2.3		1.2		0.8		2.6		2.8	
....GENUS	2.6		2.3		0.9		2.7		3.3	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	17	6
...OOCYSTACEAE										
....ANKISTRODESMUS	17	1	--	-	--	-	9	3	12	4
....CHODATELLA	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	9	3	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	--	-	45	1	--	-	--	-
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	-	--	-	--	-	23	6	--	-
...PALMELLACEAE										
....GLOEOCYSTIS	120	8	--	-	--	-	--	-	--	-
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CARTERIA	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARIUM	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	130	9	110	13	*	0	45	13	4	1
....MELOSIRA	*	0	64	8	100	3	--	-	41	14
....STEPHANODISCUS	--	-	--	-	*	0	--	-	--	-
...RHIZOSOLENIACEAE										
....RHIZOSOLENIA	*	0	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	23	2	--	-	*	0	5	1	4	1
....COCCONEIS	*	0	--	-	--	-	--	-	--	-
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	*	0	--	-	--	-
....CYMBELLA	23	2	--	-	*	0	--	-	--	-

COLUMBIA RIVER MAIN STEM

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	MAY 4,77 1245		JUN 7,77 1130		JUL 12,77 1310		AUG 8,77 1100		SEP 7,77 1700	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
DATE TIME	MAY 4,77 1245		JUN 7,77 1130		JUL 12,77 1310		AUG 8,77 1100		SEP 7,77 1700	
....EPITHEMIA	--	-	--	-	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	29	2	--	-	--	-	--	-	17	6
...FRAGILARIACEAE										
....ASTERIONELLA	400#	27	350#	41	--	-	--	-	25	8
....FRAGILARIA	11	1	95	11	56	1	63#	18	33	11
....HANNAEA	11	1	--	-	--	-	--	-	--	-
....SYNEDRA	69	5	130#	16	130	3	5	1	25	8
...GOMPHONEMATACEAE										
....GOMPHONEMA	*	0	--	-	*	0	--	-	--	-
...NAVICULACEAE										
....NAVICULA	11	1	--	-	*	0	--	-	8	3
...NITZSCHIACEAE										
....NITZSCHIA	17	1	--	-	--	-	130#	36	--	-
...TABELLARIACEAE										
....TABELLARIA	--	-	95	11	45	1	--	-	33	11
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...CHROMULINACEAE										
....CHRYSOCOCCUS	--	-	--	-	--	-	5	1	--	-
...OCHROMONADACEAE										
....DINOBRYON	--	-	--	-	41	1	50	14	12	4
....OCHROMONAS	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	66#	22
...OSCILLATORIACEAE										
....OSCILLATORIA	570#	39	--	-	--	-	--	-	--	-
....PHORMIDIUM	--	-	--	-	35000#	88	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	--	-	9	3	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	34	2	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED, LESS THAN 1/2%
SAMPLING METHOD: EDI

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
SAMPLING DEPTH 10.00(FT.).

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	143	143	143	---	---	---
2	---	---	---	---	---	---	145	142	144	---	---	---
3	---	---	---	---	---	---	145	143	144	---	---	---
4	---	---	---	---	---	---	144	142	143	---	---	---
5	---	---	---	---	---	---	146	142	143	---	---	---
6	---	---	---	---	---	---	144	143	143	---	---	---
7	---	---	---	---	---	---	143	139	142	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	136	132	133
12	---	---	---	---	---	---	---	---	---	136	133	134
13	---	---	---	---	---	---	---	---	---	138	136	137
14	---	---	---	---	---	---	---	---	---	141	139	140
15	131	129	130	---	---	---	---	---	---	142	138	140
16	133	131	132	144	142	143	---	---	---	142	140	141
17	135	132	134	144	141	142	---	---	---	145	143	144
18	137	135	136	144	142	143	---	---	---	149	144	146
19	137	133	135	144	142	143	---	---	---	155	150	153
20	139	135	136	144	141	143	---	---	---	154	150	152
21	140	139	140	144	142	143	---	---	---	157	155	156
22	---	---	---	145	143	143	---	---	---	159	157	158
23	---	---	---	145	143	144	---	---	---	162	159	161
24	---	---	---	144	143	143	---	---	---	165	163	163
25	---	---	---	144	142	143	---	---	---	166	162	164
26	---	---	---	145	142	143	---	---	---	170	164	166
27	---	---	---	145	142	144	---	---	---	173	170	171
28	---	---	---	145	144	144	---	---	---	173	171	172
29	---	---	---	147	144	145	---	---	---	173	169	172
30	---	---	---	148	142	146	---	---	---	171	163	169
31	---	---	---	---	---	---	---	---	---	172	165	170
MONTH	140	129	135	148	141	143	146	139	143	173	132	154

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	171	165	168	155	147	151	149	140	145	134	130	132
2	168	167	168	156	145	151	152	146	149	131	126	128
3	170	164	167	156	152	154	153	146	149	127	113	121
4	169	166	167	152	144	148	148	143	145	123	120	120
5	---	---	---	153	146	149	142	136	138	128	122	125
6	---	---	---	156	151	152	143	138	140	129	120	126
7	---	---	---	153	149	151	140	134	138	132	126	130
8	169	159	165	151	146	148	141	139	139	132	130	131
9	168	162	165	153	144	149	143	138	140	131	128	129
10	167	164	165	153	148	151	142	138	140	128	128	128
11	166	156	162	153	147	151	146	140	144	129	128	129
12	161	155	159	156	147	152	151	140	146	129	129	129
13	169	160	162	153	148	151	168	144	157	129	129	129
14	170	166	168	155	150	154	174	167	171	128	128	128
15	168	158	164	156	148	153	172	144	161	128	128	128
16	162	153	157	155	149	152	145	143	144	127	127	127
17	166	156	161	157	152	155	144	140	142	127	127	127
18	167	162	165	158	149	155	143	132	140	126	126	126
19	166	161	163	158	154	156	133	129	130	127	127	127
20	164	159	161	159	153	155	131	128	129	127	126	127
21	165	159	162	156	150	152	132	130	131	126	126	126
22	168	159	164	155	143	149	134	129	131	125	125	125
23	172	160	166	153	145	150	134	129	132	126	126	126
24	176	159	165	152	146	149	138	130	135	125	125	125
25	162	150	156	153	149	151	139	137	138	125	125	125
26	163	158	160	153	146	150	136	130	134	125	125	125
27	162	156	159	153	149	151	130	121	127	124	124	124
28	159	153	156	151	146	148	128	121	127	124	124	124
29	---	---	---	149	141	146	132	124	128	123	123	123
30	---	---	---	149	145	147	133	124	130	123	123	123
31	---	---	---	152	144	148	---	---	---	124	123	123
MONTH	176	150	163	159	141	151	174	121	140	134	113	126

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
SAMPLING DEPTH 10.00(FT.)

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	123	121	122	---	---	---	127	120	124	130	126	128
2	123	122	122	---	---	---	127	116	122	132	125	128
3	123	122	122	---	---	---	132	123	126	127	120	125
4	123	123	123	---	---	---	132	123	129	120	116	118
5	124	123	124	---	---	---	134	122	130	127	115	119
6	125	124	124	---	---	---	130	120	124	126	121	123
7	131	123	126	---	---	---	126	118	121	129	126	126
8	128	124	127	---	---	---	123	116	121	131	125	128
9	127	124	126	---	---	---	123	116	119	130	117	125
10	128	122	125	---	---	---	125	118	121	130	125	127
11	127	123	125	---	---	---	125	118	122	132	124	128
12	130	124	125	122	118	120	124	118	121	132	126	129
13	132	125	128	119	117	118	124	117	120	130	123	126
14	129	124	126	118	117	118	120	116	118	132	125	130
15	130	123	127	118	118	118	120	116	119	132	127	129
16	---	---	---	120	118	119	119	115	116	129	120	126
17	---	---	---	119	118	118	120	115	116	132	120	127
18	---	---	---	119	117	118	121	116	119	133	126	129
19	---	---	---	118	116	117	122	115	118	136	130	133
20	---	---	---	119	116	117	123	118	120	136	127	131
21	---	---	---	117	115	116	123	116	119	136	131	133
22	---	---	---	120	115	118	126	117	121	129	124	127
23	---	---	---	121	117	118	129	118	122	144	126	131
24	---	---	---	121	117	119	130	124	127	144	121	128
25	---	---	---	127	117	122	129	125	127	135	127	130
26	---	---	---	128	124	127	131	120	126	137	130	134
27	---	---	---	131	127	129	129	122	125	137	130	135
28	---	---	---	133	128	131	125	119	122	137	130	134
29	---	---	---	132	127	130	127	117	123	136	128	133
30	---	---	---	131	123	126	132	125	128	140	133	136
31	---	---	---	126	119	123	131	121	127	---	---	---
MONTH	132	121	125	133	115	121	134	115	122	144	115	128
YEAR	176	113	137									

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	15.0	15.0	15.0	10.5	10.0	10.0	7.0	6.5	6.5	4.5	4.0	4.0
2	15.0	14.5	15.0	10.0	10.0	10.0	7.0	6.5	6.5	4.0	3.5	4.0
3	14.5	14.5	14.5	10.0	10.0	10.0	6.5	6.5	6.5	4.0	3.5	3.5
4	15.0	14.5	14.5	10.0	10.0	10.0	6.5	6.5	6.5	4.0	3.5	3.5
5	14.5	14.5	14.5	---	---	---	6.5	6.5	6.5	3.5	3.0	3.5
6	14.5	14.0	14.5	---	---	---	6.5	6.0	6.5	3.5	3.0	3.0
7	14.0	14.0	14.0	---	---	---	6.5	6.0	6.0	3.5	3.0	3.0
8	14.0	13.5	14.0	---	---	---	6.5	6.0	6.0	3.5	3.0	3.5
9	13.5	13.5	13.5	---	---	---	6.5	6.0	6.5	3.5	3.0	3.0
10	13.5	13.5	13.5	---	---	---	7.0	6.0	6.5	3.5	3.0	3.0
11	13.5	13.5	13.5	---	---	---	7.0	6.0	6.5	3.5	3.0	3.0
12	13.5	13.0	13.5	---	---	---	6.5	6.0	6.0	3.0	3.0	3.0
13	13.5	13.0	13.5	---	---	---	6.0	5.5	6.0	3.5	3.0	3.0
14	13.5	13.0	13.0	---	---	---	6.0	6.0	6.0	3.5	3.0	3.0
15	13.0	12.5	13.0	---	---	---	6.5	6.0	6.0	3.5	3.0	3.5
16	13.0	12.5	12.5	---	---	---	6.0	6.0	6.0	3.5	3.5	3.5
17	12.5	12.5	12.5	9.0	8.5	8.5	6.0	5.5	6.0	3.5	3.5	3.5
18	12.5	12.0	12.5	8.5	8.0	8.0	6.0	5.5	5.5	3.5	3.0	3.5
19	12.5	12.0	12.0	8.0	8.0	8.0	5.5	5.0	5.5	3.5	3.0	3.5
20	12.0	12.0	12.0	8.0	8.0	8.0	5.5	5.0	5.0	3.5	3.0	3.5
21	12.0	12.0	12.0	7.5	7.5	7.5	5.0	4.5	5.0	3.5	3.0	3.5
22	12.0	11.5	11.5	7.5	7.0	7.0	5.0	5.0	5.0	3.5	3.0	3.5
23	11.5	11.5	11.5	7.0	6.5	7.0	5.0	4.5	4.5	3.5	3.0	3.5
24	11.5	11.0	11.0	7.0	7.0	7.0	5.0	4.5	4.5	3.5	3.0	3.0
25	11.0	11.0	11.0	7.0	7.0	7.0	4.5	4.5	4.5	3.5	3.0	3.0
26	11.0	11.0	11.0	7.0	6.5	6.5	5.0	4.5	4.5	3.0	3.0	3.0
27	11.0	11.0	11.0	6.5	6.5	6.5	5.0	4.5	4.5	3.0	3.0	3.0
28	11.0	10.5	10.5	6.5	6.5	6.5	4.5	4.5	4.5	3.0	3.0	3.0
29	10.5	10.5	10.5	7.0	6.5	7.0	4.5	4.5	4.5	3.0	2.5	3.0
30	10.5	10.5	10.5	7.0	6.5	7.0	4.5	4.0	4.5	3.0	2.5	3.0
31	10.5	10.5	10.5	---	---	---	4.5	4.0	4.5	3.0	2.5	3.0
MONTH	15.0	10.5	12.5	10.5	6.5	8.0	7.0	4.0	5.5	4.5	2.5	3.5

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.0	2.5	3.0	4.0	3.5	3.5	5.0	4.5	5.0	8.5	7.5	8.0
2	3.0	2.5	3.0	4.0	3.5	4.0	5.0	4.5	5.0	8.5	8.0	8.0
3	3.0	3.0	3.0	4.0	3.5	3.5	5.5	4.5	5.0	8.5	8.0	8.5
4	3.0	3.0	3.0	4.0	3.5	3.5	5.5	4.5	5.0	8.5	8.0	8.0
5	3.0	3.0	3.0	4.0	3.5	4.0	5.5	4.5	5.0	8.5	8.0	8.0
6	3.5	3.0	3.0	4.0	4.0	4.0	5.5	4.5	5.0	8.5	8.0	8.0
7	3.0	3.0	3.0	4.0	4.0	4.0	5.5	5.0	5.0	8.5	8.0	8.0
8	3.0	3.0	3.0	4.0	3.5	4.0	5.5	5.0	5.0	9.5	8.0	9.0
9	3.0	3.0	3.0	4.0	4.0	4.0	5.5	5.0	5.5	9.5	9.0	9.5
10	3.0	3.0	3.0	4.0	4.0	4.0	5.5	5.0	5.0	9.5	8.5	9.0
11	3.0	3.0	3.0	4.0	4.0	4.0	6.0	5.0	5.5	9.5	8.5	9.0
12	3.5	3.0	3.0	4.0	4.0	4.0	6.0	5.5	6.0	9.5	9.0	9.5
13	3.5	3.0	3.5	4.0	3.5	4.0	6.5	6.0	6.5	9.0	8.5	9.0
14	3.5	3.0	3.0	4.0	3.5	4.0	7.0	6.0	6.5	8.5	8.0	8.5
15	3.5	3.0	3.0	4.0	3.5	4.0	6.5	6.0	6.5	8.5	8.0	8.5
16	3.5	3.0	3.0	4.0	3.5	4.0	6.0	5.5	6.0	9.0	8.0	8.5
17	3.5	3.0	3.0	4.0	3.5	4.0	6.0	5.5	5.5	9.0	8.5	9.0
18	3.5	3.0	3.0	4.0	3.5	4.0	6.0	5.5	5.5	9.5	9.0	9.0
19	3.5	3.0	3.5	4.0	4.0	4.0	5.5	5.0	5.5	9.5	9.0	9.5
20	3.5	3.0	3.5	4.0	4.0	4.0	6.0	5.0	5.5	9.0	8.5	9.0
21	3.5	3.0	3.5	4.0	4.0	4.0	6.0	5.5	6.0	9.5	9.0	9.5
22	3.5	3.0	3.5	4.0	4.0	4.0	6.5	5.5	6.0	10.0	9.0	9.5
23	3.5	3.0	3.5	4.0	4.0	4.0	7.0	6.0	6.5	9.0	8.5	8.5
24	3.5	3.0	3.5	4.5	4.0	4.0	7.5	6.5	7.0	9.0	8.5	8.5
25	3.5	3.5	3.5	4.5	4.0	4.0	8.0	7.0	7.5	9.0	8.5	8.5
26	3.5	3.5	3.5	4.5	4.0	4.5	8.0	7.0	7.5	9.0	8.5	8.5
27	4.0	3.5	3.5	4.5	4.0	4.5	7.5	7.0	7.5	9.5	8.5	9.0
28	3.5	3.5	3.5	4.5	4.0	4.5	7.5	7.0	7.5	9.5	9.0	9.0
29	---	---	---	5.0	4.5	4.5	7.5	7.0	7.5	9.5	9.0	9.5
30	---	---	---	5.0	4.5	4.5	8.0	7.0	7.5	9.5	9.5	9.5
31	---	---	---	5.0	4.5	4.5	---	---	---	10.0	9.5	9.5
MONTH	4.0	2.5	3.0	5.0	3.5	4.0	8.0	4.5	6.0	10.0	7.5	9.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10.0	9.0	9.5	17.5	16.5	17.0	18.0	17.0	17.5	17.5	17.0	17.0
2	10.5	9.0	9.5	16.5	16.0	16.0	18.0	16.5	17.5	17.0	16.5	16.5
3	10.0	10.0	10.0	16.0	16.0	16.0	18.0	17.0	17.5	17.0	16.5	16.5
4	10.5	10.0	10.0	16.0	16.0	16.0	18.0	17.0	17.5	17.0	16.0	16.5
5	10.5	10.0	10.5	16.5	15.5	16.0	18.0	17.0	17.5	16.0	15.0	15.5
6	11.5	10.0	10.5	16.0	15.5	15.5	18.0	17.0	17.5	16.0	14.5	15.0
7	12.0	11.5	11.5	16.0	15.0	15.5	18.5	17.5	17.5	16.0	15.5	16.0
8	12.5	12.0	12.0	16.5	15.5	16.0	18.5	18.0	18.5	16.0	15.5	16.0
9	12.5	11.5	12.0	16.5	16.0	16.0	18.5	18.0	18.0	16.5	15.5	16.0
10	13.5	12.0	13.0	16.5	15.5	16.0	19.0	18.0	18.5	16.0	15.5	16.0
11	13.0	12.5	13.0	16.5	16.0	16.5	19.5	18.5	19.0	16.5	15.5	16.0
12	13.5	13.0	13.0	16.0	15.0	15.5	19.0	18.5	19.0	16.5	16.0	16.0
13	13.0	12.5	13.0	15.0	14.5	15.0	19.0	18.0	18.5	16.5	16.0	16.5
14	13.5	12.5	13.0	15.0	14.5	15.0	19.0	18.5	18.5	16.5	16.0	16.5
15	14.0	13.0	13.5	15.5	14.5	15.0	19.0	18.5	19.0	16.0	15.5	16.0
16	14.5	13.0	14.0	16.0	15.5	16.0	19.0	18.0	18.5	15.5	15.5	15.5
17	15.0	14.0	14.5	16.5	16.0	16.0	19.0	18.5	19.0	15.5	15.0	15.5
18	15.0	14.0	14.5	16.5	16.0	16.0	19.5	18.5	19.0	15.5	15.0	15.0
19	15.5	14.0	15.0	17.0	16.0	16.5	19.5	18.5	19.0	15.0	14.5	14.5
20	15.5	14.5	15.0	17.0	16.5	16.5	19.5	18.5	19.0	15.0	15.0	15.0
21	15.5	14.0	15.0	17.0	16.5	16.5	19.5	19.0	19.0	15.0	14.0	14.5
22	15.5	15.0	15.0	16.5	16.0	16.0	20.0	19.0	19.5	14.5	14.0	14.5
23	16.0	14.5	15.5	16.5	15.5	16.0	19.5	19.0	19.0	14.5	14.0	14.0
24	16.0	15.0	15.5	17.0	16.0	16.5	19.0	18.5	18.5	14.0	13.5	14.0
25	16.5	15.0	15.5	17.0	16.5	17.0	19.0	18.0	18.5	14.0	13.0	13.5
26	17.0	16.0	16.5	16.5	15.5	16.0	18.5	17.5	18.0	14.0	13.5	13.5
27	17.0	16.0	16.5	16.0	14.0	15.0	18.5	17.5	18.0	14.0	13.5	13.5
28	17.5	16.0	17.0	16.0	14.5	15.0	18.5	18.0	18.0	13.5	13.5	13.5
29	17.5	16.0	17.0	16.5	15.0	15.5	18.0	16.5	17.0	13.5	13.5	13.5
30	17.5	16.5	17.0	17.5	16.0	17.0	17.5	16.5	17.0	13.5	13.5	13.5
31	---	---	---	17.5	16.5	17.0	17.5	16.5	17.0	---	---	---
MONTH	17.5	9.0	13.5	17.5	14.0	16.0	20.0	16.5	18.0	17.5	13.0	15.0
YEAR	20.0	2.5	9.5									

12400520 COLUMBIA RIVER AT NORTHPORT, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.0	2.5	3.0	4.0	3.5	3.5	5.0	4.5	5.0	8.5	7.5	8.0
2	3.0	2.5	3.0	4.0	3.5	4.0	5.0	4.5	5.0	8.5	8.0	8.0
3	3.0	3.0	3.0	4.0	3.5	3.5	5.5	4.5	5.0	8.5	8.0	8.5
4	3.0	3.0	3.0	4.0	3.5	3.5	5.5	4.5	5.0	8.5	8.0	8.0
5	3.0	3.0	3.0	4.0	3.5	4.0	5.5	4.5	5.0	8.5	8.0	8.0
6	3.5	3.0	3.0	4.0	4.0	4.0	5.5	4.5	5.0	8.5	8.0	8.0
7	3.0	3.0	3.0	4.0	4.0	4.0	5.5	5.0	5.0	8.5	8.0	8.0
8	3.0	3.0	3.0	4.0	3.5	4.0	5.5	5.0	5.0	9.5	8.0	9.0
9	3.0	3.0	3.0	4.0	4.0	4.0	5.5	5.0	5.5	9.5	9.0	9.5
10	3.0	3.0	3.0	4.0	4.0	4.0	5.5	5.0	5.0	9.5	8.5	9.0
11	3.0	3.0	3.0	4.0	4.0	4.0	6.0	5.0	5.5	9.5	8.5	9.0
12	3.5	3.0	3.0	4.0	4.0	4.0	6.0	5.5	6.0	9.5	9.0	9.5
13	3.5	3.0	3.5	4.0	3.5	4.0	6.5	6.0	6.5	9.0	8.5	9.0
14	3.5	3.0	3.0	4.0	3.5	4.0	7.0	6.0	6.5	8.5	8.0	8.5
15	3.5	3.0	3.0	4.0	3.5	4.0	6.5	6.0	6.5	8.5	8.0	8.5
16	3.5	3.0	3.0	4.0	3.5	4.0	6.0	5.5	6.0	9.0	8.0	8.5
17	3.5	3.0	3.0	4.0	3.5	4.0	6.0	5.5	5.5	9.0	8.5	9.0
18	3.5	3.0	3.0	4.0	3.5	4.0	6.0	5.5	5.5	9.5	9.0	9.0
19	3.5	3.0	3.5	4.0	4.0	4.0	5.5	5.0	5.5	9.5	9.0	9.5
20	3.5	3.0	3.5	4.0	4.0	4.0	6.0	5.0	5.5	9.0	8.5	9.0
21	3.5	3.0	3.5	4.0	4.0	4.0	6.0	5.5	6.0	9.5	9.0	9.5
22	3.5	3.0	3.5	4.0	4.0	4.0	6.5	5.5	6.0	10.0	9.0	9.5
23	3.5	3.0	3.5	4.0	4.0	4.0	7.0	6.0	6.5	9.0	8.0	8.5
24	3.5	3.0	3.5	4.5	4.0	4.0	7.5	6.5	7.0	9.0	8.5	8.5
25	3.5	3.5	3.5	4.5	4.0	4.0	8.0	7.0	7.5	9.0	8.5	8.5
26	3.5	3.5	3.5	4.5	4.0	4.5	8.0	7.0	7.5	9.0	8.5	8.5
27	4.0	3.5	3.5	4.5	4.0	4.5	7.5	7.0	7.5	9.5	8.5	9.0
28	3.5	3.5	3.5	4.5	4.0	4.5	7.5	7.0	7.5	9.5	8.0	8.5
29	---	---	---	5.0	4.5	4.5	7.5	7.0	7.5	9.5	9.0	9.0
30	---	---	---	5.0	4.5	4.5	8.0	7.0	7.5	9.5	9.5	9.5
31	---	---	---	5.0	4.5	4.5	---	---	---	10.0	9.5	9.5
MONTH	4.0	2.5	3.0	5.0	3.5	4.0	8.0	4.5	6.0	10.0	7.5	9.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	10.0	9.0	9.5	17.5	16.5	17.0	18.0	17.0	17.5	17.5	17.0	17.0
2	10.5	9.0	9.5	16.5	16.0	16.0	18.0	16.5	17.5	17.0	16.5	16.5
3	10.0	10.0	10.0	16.5	16.0	16.0	18.0	17.0	17.5	17.0	16.5	16.5
4	10.5	10.0	10.0	16.0	16.0	16.0	18.0	17.0	17.5	17.0	16.0	16.5
5	10.5	10.0	10.5	16.5	15.5	16.0	18.0	17.0	17.5	16.0	15.0	15.5
6	11.5	10.0	10.5	16.0	15.5	15.5	18.0	17.0	17.5	16.0	14.5	15.0
7	12.0	11.5	11.5	16.0	15.0	15.5	18.5	17.0	17.5	16.0	15.5	16.0
8	12.5	12.0	12.0	16.5	15.5	16.0	18.5	18.0	18.5	16.0	15.5	16.0
9	12.5	11.5	12.0	16.5	16.0	16.0	18.5	18.0	18.0	16.5	15.5	16.0
10	13.5	12.0	13.0	16.5	15.5	16.0	19.0	18.0	18.5	16.0	15.5	16.0
11	13.5	12.5	13.0	16.5	16.0	16.5	19.5	18.5	19.0	16.5	15.5	16.0
12	13.5	13.0	13.0	16.0	15.0	15.5	19.0	18.5	19.0	16.5	16.0	16.0
13	13.0	12.5	13.0	15.0	14.5	15.0	19.0	18.0	18.5	16.5	16.0	16.5
14	13.5	12.5	13.0	15.0	14.5	15.0	19.0	18.5	18.5	16.5	16.0	16.5
15	14.0	13.0	13.5	15.5	14.5	15.0	19.0	18.5	19.0	16.0	15.5	16.0
16	14.5	13.0	14.0	16.5	15.5	16.0	19.0	18.0	18.5	15.5	15.5	15.5
17	15.0	14.0	14.5	16.5	16.0	16.0	19.0	18.5	19.0	15.5	15.0	15.5
18	15.0	14.0	14.5	16.5	16.0	16.0	19.5	18.5	19.0	15.5	15.0	15.0
19	15.5	14.0	15.0	17.0	16.0	16.5	19.5	18.5	19.0	15.0	14.5	14.5
20	15.5	14.5	15.0	17.0	16.5	16.5	19.5	18.5	19.0	15.0	15.0	15.0
21	15.5	14.0	15.0	17.0	16.5	16.5	19.5	19.0	19.0	15.0	14.5	14.5
22	15.5	15.0	15.0	16.5	16.0	16.0	20.0	19.0	19.5	14.5	14.0	14.5
23	16.0	14.5	15.5	16.5	15.5	16.0	19.5	19.0	19.0	14.5	14.0	14.0
24	16.0	15.0	15.5	17.0	16.0	16.5	19.0	18.5	18.5	14.0	13.5	14.0
25	16.5	15.0	15.5	17.0	16.5	17.0	19.0	18.0	18.5	14.0	13.0	13.5
26	17.0	16.0	16.5	16.5	15.5	16.0	18.5	17.5	18.0	14.0	13.5	13.5
27	17.0	16.0	16.5	16.0	14.0	15.0	18.5	17.5	18.0	14.0	13.5	13.5
28	17.5	16.0	17.0	16.0	14.5	15.0	18.5	18.0	18.0	13.5	13.5	13.5
29	17.5	16.0	17.0	16.5	15.0	15.5	18.0	16.5	17.0	13.5	13.5	13.5
30	17.5	16.5	17.0	17.5	16.0	17.0	17.5	16.5	17.0	13.5	13.5	13.5
31	---	---	---	17.5	16.5	17.0	17.5	16.5	17.0	---	---	---
MONTH	17.5	9.0	13.5	17.5	14.0	16.0	20.0	16.5	18.0	17.5	13.0	15.0
YEAR	20.0	2.5	9.5									

12401500 KETTLE RIVER NEAR FERRY, WA
(International gaging station)

LOCATION.--Lat 48°58'53", long 118°45'55", in SE¼NW¼ sec.10, T.40 N., R.32 E., Ferry County, Hydrologic Unit 17020002, on right bank 0.5 mi (0.8 km) upstream from Catherine Creek, 1.3 mi (2.1 km) south of international boundary and Ferry, 3.2 mi (5.1 km) upstream from Toroda Creek, and at mile 84.02 (135.2 km).

DRAINAGE AREA.--2,220 mi² (5,750 km²), approximately.

PERIOD OF RECORD.--August 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,836.8 ft (559.86 m) above mean sea level, international joint adjustment of 1947. Prior to Nov. 23, 1928, nonrecording gage at same site and datum.

REMARKS.--Records excellent. Several small diversions above station for irrigation. No regulation.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--49 years, 1,499 ft³/s (42.45 m³/s), 1,086,000 acre-ft/yr (1,340 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft³/s (600 m³/s) May 29, 1948, gage height, 21.15 ft (6.447 m); minimum, 14 ft³/s (0.40 m³/s), discharge measurement, Jan. 23, 1930, but may have been less during period of ice effect Jan. 18-23, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,000 ft³/s (283 m³/s) May 3, gage height, 16.72 ft (5.096 m); minimum, 92 ft³/s (2.61 m³/s) Dec. 31, Aug. 21, 22, 23, gage height, 9.29 ft (2.832 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	609	442	290	105	150	213	223	5350	3800	967	281	212
2	590	451	307	115	160	212	222	5660	5820	889	253	198
3	599	441	232	135	160	214	224	8740	5260	833	235	188
4	717	423	200	148	167	207	237	9430	4690	798	220	180
5	686	421	142	150	169	218	268	7430	5200	873	209	182
6	666	417	168	145	169	220	314	6060	5470	955	196	178
7	685	411	215	140	170	224	380	5290	6460	878	188	180
8	696	399	263	135	170	236	513	5000	7060	802	177	175
9	684	400	274	140	190	247	771	4860	6070	731	167	161
10	661	396	267	150	187	244	1030	4980	4830	675	158	149
11	634	388	264	160	178	235	1090	5790	4270	631	151	142
12	642	371	272	160	184	231	1110	6090	3970	602	144	136
13	619	303	273	160	188	226	1100	5210	3870	604	137	129
14	585	217	265	165	195	217	1150	4740	3800	590	130	123
15	561	275	264	170	187	210	1200	4500	3480	559	122	119
16	539	295	269	175	196	211	1210	4180	3240	525	116	117
17	522	344	260	180	202	212	1210	3900	3060	491	111	118
18	508	381	255	180	198	204	1190	3750	2820	472	106	120
19	490	363	180	170	194	203	1150	3630	2590	473	103	120
20	475	278	145	170	194	201	1090	3520	2430	434	99	128
21	467	261	130	170	198	200	1060	3650	2410	401	94	143
22	460	222	152	170	207	201	1060	3990	2180	371	93	161
23	451	283	181	160	211	214	1160	3980	2040	346	93	181
24	442	315	205	160	203	233	1650	4640	1800	321	106	201
25	450	337	214	160	196	235	2930	4960	1640	303	111	209
26	456	232	229	160	201	234	4870	4410	1520	290	131	209
27	450	180	245	160	207	229	5910	4260	1360	279	192	211
28	447	211	246	150	210	225	5430	3920	1250	263	214	208
29	449	242	210	150	---	220	5170	3570	1150	263	212	202
30	450	233	145	150	---	218	5240	3330	1050	278	207	195
31	447	---	106	150	---	219	---	3200	---	315	210	---
TOTAL	17137	9932	6868	4793	5241	6813	50162	152020	104590	17212	4966	4975
MEAN	553	331	222	155	187	220	1672	4904	3486	555	160	166
MAX	717	451	307	180	211	247	5910	9430	7060	967	281	212
MIN	442	180	106	105	150	200	222	3200	1050	263	93	117
AC-FT	33990	19700	13620	9510	10400	13510	99500	301500	207500	34140	9850	9870

CAL YR 1976 TOTAL 724253 MEAN 1979 MAX 12900 MIN 106 AC-FT 1437000
WTR YR 1977 TOTAL 384709 MEAN 1054 MAX 9430 MIN 93 AC-FT 763100

12404500 KETTLE RIVER NEAR LAURIER, WA
(International gaging station)

LOCATION.--Lat 48°59'04", long 118°12'55", in SW¼NW¼ sec.11, T.40 N., R.36 E., Ferry County, Hydrologic Unit 17020002, on right bank 1,000 ft (305 m) downstream from Deep Creek, 1.1 mi (1.8 km) south of international boundary, 1.1 mi (1.8 km) southeast of Laurier, and at mile 29.71 (47.80 km).

DRAINAGE AREA.--3,800 mi² (9,800 km²), approximately.

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 737: 1930-31. WSP 862: 1937. WSP 882: 1938.

GAGE.--Water-stage recorder. Datum of gage is 1,425.5 ft (434.49 m) above mean sea level, international joint adjustment of 1947. Prior to Jan. 3, 1930, nonrecording gage at same site and datum.

REMARKS.--Records excellent except those for periods of ice effect, which are fair. Diversions for irrigation of about 720 acres (290 hm²) in the United States (for 1946 from United States reports), and 2,090 acres (850 hm²) in Canada from the Canada Year Book for 1940.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--48 years, 2,873 ft³/s (81.36 m³s), 2,081,000 acre-ft/yr (2,570 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft³/s (991 m³/s) May 29, 1948, gage height, 17.25 ft (5.258 m); minimum, 88 ft³/s (2.49 m³/s) Dec. 1, 1936, gage height, 2.20 ft (0.671 m), but was probably less during winter of 1929-30.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1894 reached a stage of about 22 ft (6.7 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,000 ft³/s (453 m³/s) May 4, gage height, 11.65 ft (3.551 m); minimum, 198 ft³/s (5.61 m³/s) Aug. 23, gage height, 2.51 ft (0.765 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1120	782	467	232	335	429	490	8550	5820	1940	593	384
2	1110	776	530	255	335	432	493	8860	8860	1790	548	380
3	1080	771	531	280	355	429	497	13100	8930	1660	505	371
4	1110	755	460	325	360	427	505	15500	8800	1580	474	361
5	1200	736	360	335	370	415	556	12800	8650	1550	452	355
6	1150	732	300	330	380	427	646	10300	9050	1630	435	355
7	1140	724	350	320	390	434	793	8970	10700	1640	414	350
8	1140	716	431	305	410	456	1090	8400	12100	1520	394	344
9	1140	701	483	305	420	475	1670	8090	11100	1420	373	337
10	1120	697	503	315	420	483	2170	8120	8790	1330	357	321
11	1080	689	501	320	380	479	2240	9100	7550	1250	340	305
12	1060	678	493	330	400	477	2210	10000	7020	1200	324	290
13	1050	652	494	355	410	475	2150	8800	6730	1180	308	278
14	1020	570	497	365	420	458	2280	7950	6590	1150	296	269
15	985	489	504	375	400	445	2340	7610	6270	1110	284	257
16	956	530	507	380	410	442	2350	7190	5890	1060	267	245
17	928	589	512	390	425	439	2340	6760	5610	1010	256	243
18	904	631	498	400	410	433	2310	6490	5240	951	246	242
19	883	672	439	390	400	424	2260	6330	4850	914	233	244
20	857	632	320	380	384	419	2150	6080	4530	888	223	253
21	837	528	300	380	389	416	2070	6120	4370	836	214	264
22	823	480	280	375	403	418	2020	6620	4130	788	207	298
23	809	460	310	370	423	436	2080	6760	3840	739	203	328
24	796	500	377	360	419	463	2600	7350	3460	697	225	352
25	806	600	417	355	412	491	4440	8200	3130	664	233	379
26	802	550	430	350	399	500	7300	7470	2880	636	263	395
27	798	440	454	350	406	503	9300	7050	2650	614	290	395
28	788	350	466	340	420	498	8800	6670	2430	589	334	399
29	782	420	450	335	---	491	8280	6160	2240	561	378	402
30	778	440	370	335	---	487	8360	5730	2080	575	388	391
31	779	---	280	335	---	488	---	5440	---	584	395	---
TOTAL	29831	18290	13314	10572	11085	14089	86790	252570	183490	34056	10452	9787
MEAN	962	610	429	341	396	454	2893	8147	6116	1099	337	326
MAX	1200	782	531	400	425	503	9300	15500	12100	1940	593	402
MIN	778	350	280	232	335	415	490	5440	2080	561	203	242
AC-FT	59170	36280	26410	20970	21990	27950	172100	501000	364000	67550	20730	19410

CAL YR 1976 TOTAL 1339599 MEAN 3660 MAX 22400 MIN 280 AC-FT 2657000
WTR YR 1977 TOTAL 674326 MEAN 1847 MAX 15500 MIN 203 AC-FT 1338000

12406000 DEER LAKE NEAR LOON LAKE, WA

LOCATION.--Lat 48°06'28", long 117°36'06", in SW¼SW¼ sec.11, T.30 N., R.41 E., Stevens County, Hydrologic Unit 17020003, 0.2 mi (0.3 km) upstream from outlet at Stymans' Resort, and 3.4 mi (5.5 km) northeast of the town of Loon Lake.

DRAINAGE AREA.--18.2 mi² (47.1 km²).

PERIOD OF RECORD.--November 1952 to November 1968 (fragmentary), December 1968 to current year, chemical analyses October 1971 to September 1972.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,473.9 ft (754.04 m) above mean sea level, unadjusted. Prior to Oct. 1, 1953, nonrecording gage 150 ft (46 m) down lake at datum 4.00 ft (1.219 m) higher, and Oct. 1, 1953, to Nov. 13, 1968, nonrecording gage 300 ft (91 m) down lake at present datum.

REMARKS.--Intermediate stages of lake controlled by county road fill and two corrugated metal pipe culverts. Some pumping for domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 9.30 ft (2.835 m) Apr. 25, 26, 1956; minimum observed, 3.05 ft (0.930 m) Jan. 8, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.92 ft (1.804 m) Oct. 1, 2; minimum, 3.93 ft (1.198 m) Sept. 23, 24, 29, 30.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.91	5.63	5.42	5.34	5.26	5.36	5.61	5.42	5.43	5.09	4.58	4.16
2	5.92	5.62	5.42	5.33	5.26	5.36	5.61	5.44	5.44	5.06	4.60	4.15
3	5.91	5.61	5.41	5.32	5.26	5.36	5.61	5.45	5.43	5.03	4.60	4.14
4	5.89	5.60	5.40	5.31	5.25	5.36	5.61	5.47	5.45	5.01	4.60	4.14
5	5.87	5.60	5.39	5.31	5.24	5.36	5.61	5.46	5.46	4.98	4.61	4.15
6	5.85	5.59	5.39	5.30	5.24	5.37	5.61	5.46	5.46	4.95	4.60	4.14
7	5.84	5.59	5.38	5.29	5.24	5.39	5.62	5.46	5.46	4.94	4.57	4.11
8	5.83	5.58	5.39	5.29	5.23	5.47	5.62	5.46	5.47	4.93	4.56	4.09
9	5.82	5.58	5.40	5.28	5.23	5.53	5.62	5.46	5.44	4.92	4.52	4.07
10	5.81	5.57	5.40	5.28	5.24	5.54	5.61	5.46	5.41	4.91	4.48	4.06
11	5.80	5.56	5.39	5.28	5.24	5.54	5.61	5.46	5.41	4.90	4.49	4.03
12	5.79	5.55	5.38	5.29	5.24	5.55	5.61	5.46	5.41	4.88	4.48	4.03
13	5.78	5.54	5.38	5.30	5.25	5.57	5.61	5.46	5.39	4.87	4.48	4.01
14	5.77	5.52	5.37	5.30	5.25	5.58	5.61	5.45	5.37	4.85	4.47	4.00
15	5.75	5.52	5.38	5.30	5.25	5.58	5.60	5.44	5.37	4.84	4.45	4.00
16	5.74	5.52	5.37	5.29	5.25	5.58	5.60	5.42	5.36	4.82	4.42	3.98
17	5.72	5.52	5.36	5.31	5.26	5.58	5.59	5.42	5.35	4.80	4.39	3.97
18	5.70	5.52	5.35	5.33	5.26	5.58	5.58	5.47	5.35	4.77	4.38	3.96
19	5.69	5.51	5.35	5.33	5.26	5.58	5.58	5.47	5.33	4.75	4.35	3.95
20	5.68	5.50	5.34	5.33	5.26	5.58	5.57	5.47	5.31	4.73	4.33	3.94
21	5.67	5.49	5.33	5.33	5.27	5.58	5.57	5.49	5.29	4.72	4.32	3.95
22	5.66	5.49	5.32	5.33	5.29	5.58	5.56	5.48	5.27	4.71	4.29	3.94
23	5.65	5.48	5.33	5.33	5.30	5.60	5.52	5.45	5.26	4.69	4.26	3.93
24	5.64	5.48	5.33	5.33	5.30	5.62	5.47	5.45	5.24	4.66	4.27	3.94
25	5.65	5.48	5.35	5.32	5.31	5.62	5.46	5.44	5.22	4.65	4.26	3.98
26	5.65	5.47	5.38	5.32	5.33	5.62	5.45	5.45	5.20	4.63	4.26	3.97
27	5.64	5.46	5.37	5.31	5.33	5.62	5.43	5.45	5.18	4.62	4.25	3.96
28	5.63	5.46	5.37	5.31	5.34	5.62	5.43	5.44	5.16	4.64	4.23	3.95
29	5.63	5.44	5.36	5.30	---	5.62	5.43	5.44	5.13	4.60	4.21	3.94
30	5.62	5.43	5.36	5.30	---	5.61	5.42	5.42	5.11	4.56	4.19	3.94
31	5.62	---	5.35	5.30	---	5.61	---	5.42	---	4.54	4.18	---
MEAN	5.75	5.53	5.37	5.31	5.27	5.53	5.56	5.45	5.34	4.81	4.41	4.02
MAX	5.92	5.63	5.42	5.34	5.34	5.62	5.62	5.49	5.47	5.09	4.61	4.16
MIN	5.62	5.43	5.32	5.28	5.23	5.36	5.42	5.42	5.11	4.54	4.18	3.93

WTR YR 1977 MEAN 5.20 MAX 5.92 MIN 3.93

12406500 LOON LAKE NEAR LOON LAKE, WA

LOCATION.--Lat 48°01'42", long 117°36'14" in SW¼NW¼ sec.11, T.29 N., R.41 E., Stevens County, Hydrologic Unit 17020003, at south end of Loon Lake, 2.7 mi (4.3 km) southeast of town of Loon Lake.

DRAINAGE AREA.--14.1 mi² (36.5 km²).

PERIOD OF RECORD.--April 1950 to current year, chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1216: 1950. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level, datum of 1929, unadjusted; 0.94 ft (0.287 m) above mean sea level, datum of 1929, supplementary adjustment of 1947. Prior to Sept. 29, 1951, water-stage recorder at site 0.2 mi (0.3 km) north at same datum.

REMARKS.--Elevation controlled by dam at lake outlet. Some pumping for domestic use and irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,382.71 ft (726.250 m) May 3, 1950, but may have been higher sometime in 1951 water year while water-stage recorder was not operating; minimum, 2,378.62 ft (725.003 m) Oct. 18, 19, 20, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 2,380.02 ft (725.430 m) Oct. 2; minimum recorded 2,378.88 ft (725.083 m) Aug. 1.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2379.99	2379.78	2379.66	2379.64	2379.66	2379.76	2379.94	2379.78	2379.73	2379.38	2378.88	
2	2380.00	2379.78	2379.66	2379.64	2379.66	2379.76	2379.94	2379.79	2379.73	2379.35	---	
3	2379.99	2379.77	2379.65	2379.63	2379.66	2379.76	2379.95	2379.81	2379.72	2379.32	---	
4	2379.97	2379.77	2379.65	2379.63	2379.66	2379.76	2379.94	2379.81	2379.73	2379.30	---	
5	2379.95	2379.77	2379.64	2379.62	2379.67	2379.76	2379.94	2379.80	2379.74	2379.28	---	
6	2379.95	2379.76	2379.64	2379.63	2379.67	2379.76	2379.94	2379.79	2379.73	2379.27	---	
7	2379.93	2379.76	2379.64	2379.66	2379.68	2379.77	2379.94	2379.78	2379.73	2379.25	---	
8	2379.93	2379.75	2379.64	2379.66	2379.68	2379.83	2379.93	2379.77	2379.72	2379.24	---	
9	2379.93	2379.75	2379.65	2379.66	2379.68	2379.87	2379.92	2379.77	2379.72	2379.22	---	
10	2379.92	2379.75	2379.64	2379.67	2379.68	2379.87	2379.92	2379.78	2379.70	2379.21	---	
11	2379.92	2379.74	2379.64	2379.67	2379.68	2379.87	2379.91	2379.79	2379.69	2379.19	---	
12	2379.91	2379.73	2379.64	2379.68	---	2379.90	2379.90	2379.78	2379.71	2379.18	---	
13	2379.91	2379.73	2379.64	2379.69	---	2379.94	2379.90	2379.77	2379.71	2379.16	---	
14	2379.90	2379.72	2379.63	2379.69	---	2379.94	2379.90	2379.76	2379.70	2379.15	---	
15	2379.89	2379.72	2379.63	2379.69	---	2379.94	2379.89	2379.75	2379.70	2379.14	---	
16	2379.89	2379.72	2379.63	2379.69	---	2379.95	2379.87	2379.74	2379.68	2379.12	---	
17	2379.88	2379.72	2379.63	2379.69	2379.68	2379.96	2379.85	2379.74	2379.67	2379.10	---	
18	2379.88	2379.72	2379.63	2379.69	2379.68	2379.94	2379.84	2379.80	2379.65	2379.08	---	
19	2379.87	2379.71	2379.62	2379.68	2379.68	2379.94	2379.84	2379.79	2379.62	2379.06	---	
20	2379.87	2379.71	2379.62	2379.68	2379.68	2379.94	2379.85	2379.77	2379.60	2379.04	---	
21	2379.86	2379.70	2379.62	2379.68	2379.69	2379.93	2379.84	2379.76	2379.58	2379.03	---	
22	2379.84	2379.69	2379.61	2379.67	2379.71	2379.93	2379.84	2379.76	2379.57	2379.02	---	
23	2379.81	2379.69	2379.62	2379.67	2379.71	2379.96	2379.84	2379.76	2379.55	2379.01	---	
24	2379.81	2379.69	2379.62	2379.67	2379.71	2379.98	2379.83	2379.77	2379.53	2379.03	---	
25	2379.80	2379.71	2379.63	2379.67	2379.71	2379.94	2379.82	2379.76	2379.51	2378.99	---	
26	2379.79	2379.70	2379.65	2379.67	2379.73	2379.94	2379.81	2379.76	2379.49	2378.98	---	
27	2379.79	2379.68	2379.66	2379.67	2379.73	2379.93	2379.81	2379.75	2379.47	2378.97	---	
28	2379.78	2379.68	2379.65	2379.67	2379.74	2379.93	2379.81	2379.74	2379.46	2378.96	---	
29	2379.78	2379.67	2379.65	2379.67	---	2379.93	2379.80	2379.74	2379.42	2378.93	---	
30	2379.77	2379.66	2379.65	2379.67	---	2379.93	2379.79	2379.74	2379.40	2378.91	---	
31	2379.78	---	2379.65	2379.66	---	2379.93	---	2379.73	---	2378.90	---	
MEAN	2379.88	2379.72	2379.64	2379.67	---	2379.89	2379.88	2379.77	2379.63	2379.12	---	
MAX	2380.00	2379.78	2379.66	2379.69	---	2379.98	2379.95	2379.81	2379.74	2379.38	---	
MIN	2379.77	2379.66	2379.61	2379.62	---	2379.76	2379.79	2379.73	2379.40	2378.90	---	

12409000 COLVILLE RIVER AT KETTLE FALLS, WA

LOCATION.--Lat 48°35'40", long 118°03'41", in NE¼NE¼ sec.30, T.36 N., R.38 E., Stevens County, Hydrologic Unit 17020003, on right bank 600 ft (180 m) downstream from Washington Water Power Co.'s hydroelectric plant at foot of Meyers Falls, 1.0 mi (1.6 km) south of town of Kettle Falls, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--1,007 mi^2 (2,608 km^2).

PERIOD OF RECORD.--October 1922 to current year. Published as "as Meyers Falls" 1922-38. Chemical records 1960-72, 1974-76, water temperatures November 1969 to June 1971.

REVISED RECORDS.--WSP 1316: 1938(M), 1941(M), 1948(M). WSP 1636: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,400 ft (427 m), from topographic map. Prior to Oct. 21, 1932, nonrecording gage at site 500 ft (150 m) upstream at different datum. Oct. 21, 1932, to Sept. 19, 1938, nonrecording gages at site 200 ft (60 m) upstream at different datum. Sept. 20, 1938, to Mar. 20, 1949, nonrecording gage at present site and datum.

REMARKS.--Records excellent. Several ditches above station divert water for irrigation. Regulation at low flow by powerplant.

AVERAGE DISCHARGE.--55 years, 305 ft^3/s (8.638 m^3/s), 221,000 acre-ft/yr (272 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,440 ft^3/s (97.4 m^3/s) Jan. 21, 1974, gage height, 9.84 ft (2.999 m); maximum gage height, 10.17 ft (3.100 m) Apr. 23, 1956; minimum discharge observed, 0.5 ft^3/s (0.014 m^3/s) Aug. 15, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 287 ft^3/s (8.13 m^3/s) Mar. 9, gage height, 5.99 ft (1.826 m); minimum, 4.6 ft^3/s (0.13 m^3/s) July 19, 20, gage height, 4.48 ft (1.366 m) result of regulation.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	138	111	59	120	152	162	97	104	26	20	43
2	109	146	109	61	125	168	162	91	109	26	17	43
3	111	140	105	70	130	162	155	106	109	26	15	42
4	116	140	105	81	130	155	158	138	106	24	14	46
5	116	140	110	89	130	152	165	162	116	23	17	48
6	118	140	110	82	132	155	174	140	126	21	28	47
7	116	140	110	89	135	158	174	124	106	24	32	48
8	116	140	115	85	140	204	180	126	93	29	28	44
9	116	138	125	81	146	278	184	111	89	24	24	47
10	118	138	120	81	149	274	180	109	82	20	16	48
11	118	138	130	80	168	222	168	116	84	21	17	47
12	118	138	140	81	191	197	158	124	85	24	14	48
13	118	132	140	81	201	194	158	113	100	24	14	43
14	116	116	140	84	201	201	165	109	106	22	13	43
15	116	129	143	85	177	191	168	100	97	21	14	47
16	116	143	138	86	158	184	152	95	84	23	14	47
17	116	149	149	93	162	177	152	91	80	23	11	57
18	116	146	135	105	162	177	143	109	71	22	4.8	60
19	116	146	126	115	155	168	140	138	68	11	4.8	62
20	118	140	104	125	155	158	138	129	63	5.0	5.0	62
21	121	138	116	125	152	155	132	118	50	11	5.9	65
22	121	135	135	130	168	155	129	113	47	13	8.4	65
23	124	135	143	127	174	168	118	116	48	13	9.7	63
24	124	143	135	127	165	197	124	111	47	13	16	66
25	132	146	132	120	155	211	132	118	37	14	29	70
26	143	143	146	115	149	191	118	113	36	16	39	74
27	143	121	149	117	149	184	118	116	31	25	41	71
28	135	97	143	116	149	174	118	116	30	30	37	68
29	135	121	132	117	---	168	109	113	27	24	41	70
30	135	118	76	116	---	158	104	116	26	19	40	73
31	135	---	50	107	---	162	---	109	---	22	43	---
TOTAL	3761	4074	3822	3030	4328	5650	4438	3587	2257	639.0	632.6	1657
MEAN	121	136	123	97.7	155	182	148	116	75.2	20.6	20.4	55.2
MAX	143	149	149	130	201	278	184	162	126	30	43	74
MIN	109	97	50	59	120	152	104	91	26	5.0	4.8	42
AC-FT	7460	8080	7580	6010	8580	11210	8800	7110	4480	1270	1250	3290

CAL YR 1976 TOTAL 99914.0 MEAN 273 MAX 857 MIN 48 AC-FT 198200
WTR YR 1977 TOTAL 37875.6 MEAN 104 MAX 278 MIN 4.8 AC-FT 75130

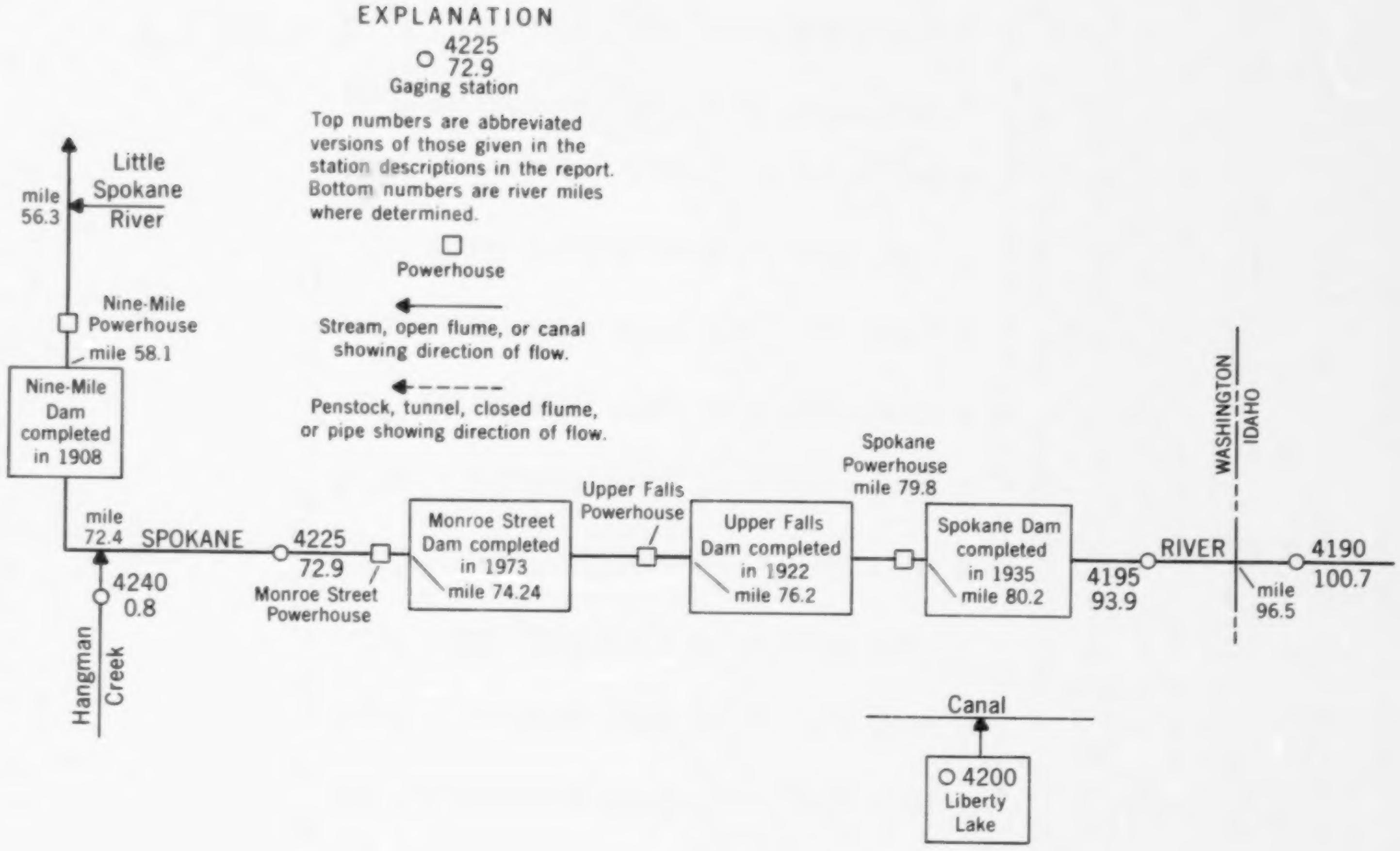
EXPLANATION
○ 4225
72.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
□
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Little Spokane River
mile 56.3
Nine-Mile Powerhouse
mile 58.1
Nine-Mile Dam completed in 1908
mile 72.4
SPOKANE
4240
0.8
Hangman Creek
4225
72.9
Monroe Street Powerhouse
Monroe Street Dam completed in 1973
mile 74.24
Upper Falls Powerhouse
Upper Falls Dam completed in 1922
mile 76.2
Spokane Powerhouse
mile 79.8
Spokane Dam completed in 1935
mile 80.2
4195
93.9
RIVER
WASHINGTON
IDAHO
mile 96.5
4190
100.7
Canal
○ 4200
Liberty Lake

Figure 8. Gaging stations in Spokane River basin above Little Spokane River.

12419000 SPOKANE RIVER NEAR POST FALLS, ID

LOCATION.--Lat 47°42'10", long 116°58'40", in SW¼SW¼ sec.4, T.50 N., R.5 W., Kootenai County, Hydrologic Unit 17010305, on right bank 1 mi (1.6 km) downstream from powerplant of Washington Water Power Co., 1.5 mi (2.4 km) southwest of Post Falls, and at mile 100.7 (162.0 km).

DRAINAGE AREA.--3,840 mi² (9,946 km²), approximately, of which about 122 mi² (316 km²) in the vicinity of Hayden Lake is noncontributing to this station.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1912 to current year (prior to January 1913 monthly discharge only, published in WSP 870 and 1736). Prior to October 1949, published as "at Post Falls".

GAGE.--Water-stage recorder. Datum of gage is 2,050 ft (624.8 m) above mean sea level, referenced to same datum as gage on Coeur d'Alene Lake at Coeur d'Alene (see sta 12415500). Datum of 1929, supplementary adjustment of 1947, is 3.00 ft (0.914 m) higher. Jan. 1, 1913, to Nov. 21, 1920, nonrecording gage and Nov. 22, 1920, to Sept. 30, 1964, water-stage recorder at present site or 0.6 (1.0 km) or 0.8 mi (1.3 km) upstream at datum 50 ft (15.2 m) lower than present datum.

REMARKS.--Records excellent except those for November, December, and August, which are good. Rathdrum Prairie Canal (see sta 12418000) diverts water above gage for irrigation. Figures of daily discharge do not include water diverted by this canal. Flow regulated by dam at Post Falls and affected by storage in Coeur d'Alene Lake (see sta 12415500).

AVERAGE DISCHARGE.--River only, 65 years, 6,301 ft³/s (178 m³/s), 4,565,000 acre-ft/yr (5,629 hm³/yr); combined river and diversions above gage, 65 years, 6,392 ft³/s (187 m³/s), 4,631,000 acre-ft/yr (5,710 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft³/s (1,419 m³/s) when recorder was not operating Dec. 25, 1933 (determined from unpublished records collected by Washington Water Power Co. for station at Liberty Bridge); minimum, 65 ft³/s (1.84 m³/s) July 25, 30, 1973; minimum gage height, 4.68 ft (1.426 m) July 20, 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,630 ft³/s (216.1 m³/s) May 11, gage height, 12.02 ft (3.664 m); minimum, 71 ft³/s (2.01 m³/s) July 20, 21, gage height, 4.68 ft (1.426 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1900	1930	1430	1610	1690	1650	2250	3670	5300	1230	708	1290
2	1890	1930	1430	1610	1690	1770	2200	3960	5320	900	778	1290
3	1900	1940	1430	1610	1530	1740	2250	5270	5010	750	750	1290
4	1900	1940	1430	1610	1460	1690	2280	6360	4250	534	770	1290
5	1900	1940	1430	1610	1480	1690	2340	6050	3520	637	770	1320
6	1890	1930	1430	1620	1500	1680	2460	5520	3440	740	770	1310
7	1880	1560	1420	1630	1490	1700	2530	5750	3680	869	770	1310
8	1880	1930	1420	1640	1490	1740	3040	6220	3910	900	770	1320
9	1890	1930	1420	1650	1500	1920	3250	6200	3950	990	770	1320
10	1900	1930	1420	1660	1490	2100	3030	6750	4230	1090	770	1310
11	1900	1940	1420	1680	1490	2250	4130	7400	4440	1410	760	1310
12	1900	1950	1420	1680	1490	2330	3760	7540	4410	1420	762	1300
13	1900	1960	1420	1680	1500	2420	4190	6870	4040	1420	760	1310
14	1900	1970	1430	1690	1500	2430	4200	6320	3590	1420	760	1310
15	1910	1960	1430	1690	1410	2420	4210	5990	3590	1420	300	1310
16	1920	1960	1430	1690	1450	2400	4220	5360	3140	1420	110	1320
17	1920	1960	1430	1690	1500	2370	4220	5380	2480	750	520	1320
18	1920	1970	1430	1690	1500	2360	4230	5370	2310	90	730	1310
19	1920	1600	1420	1680	1500	2250	4200	5390	2220	77	700	1330
20	1920	1420	1430	1670	1500	2210	4260	5170	2080	77	620	1340
21	1930	1420	1430	1680	1500	2260	4240	4630	1730	165	600	1360
22	1940	1420	1430	1690	1590	2250	4160	5370	1710	870	660	1330
23	1930	1420	1440	1690	1740	2180	4060	5340	1720	871	651	1400
24	1930	1420	1440	1690	1590	2160	3980	5350	1690	880	651	1440
25	1940	1430	1450	1690	1660	2160	3800	5340	1610	886	663	1450
26	1940	1420	1450	1690	1760	2180	3590	5370	1630	1160	703	1610
27	1940	1430	1440	1690	1760	2200	3780	5650	1630	1130	743	1740
28	1930	1430	1530	1680	1690	2210	3790	5790	1630	870	739	1730
29	1930	1430	1600	1680	---	2210	3780	5810	1630	879	716	1810
30	1930	1430	1600	1670	---	2200	3760	5350	1620	878	718	1860
31	1930	---	1600	1660	---	2290	---	5320	---	824	1050	---
TOTAL	59310	51920	44930	51600	43450	65420	106750	176040	91710	27567	21550	41940
MEAN	1913	1731	1449	1665	1552	2110	3558	5679	3057	889	695	1398
MAX	1940	1970	1600	1690	1760	2430	4260	7540	5320	1420	1050	1860
MIN	1880	1420	1420	1610	1410	1650	2200	3670	1610	77	110	1290
AC-FT	117600	103000	89120	102300	86180	129800	211700	349200	181900	54680	42740	83190
MEAN†	1,913	1,731	1,449	1,665	1,552	2,110	3,563	5,702	3,103	931	748	1,420
AC-FT†	117,600	103,000	89,120	102,300	86,180	129,800	212,000	350,600	184,600	57,250	45,980	84,520

CAL YR 1976: TOTAL 2,514,620 MEAN 6,871 MAX 30,200 MIN 1,230 AC-FT 4,988,000
DO.....: MEAN† 6,885 AC-FT† 4,998,000
WTR YR 1977: TOTAL 782,187 MEAN 2,143 MAX 7,540 MIN 77 AC-FT 1,551,000
DO.....: MEAN† 2,159 AC-FT† 1,563,000

† Adjusted for diversion through Rathdrum Prairie Canal.

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected 0.2 mi (0.3 km) upstream from gage.

PERIOD OF RECORD.--Water years 1973 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	AIR TEMPER-ATURE (DEG C)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	CHEM-ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	FECAL COLI-FORM ,7UM-MF (COL./100 ML)	HARD-NESS (CA,MG) (MG/L)
OCT												
18...	1100	1960	58	7.4	7.5	12.0	2	9.5	95	6	<1	--
NOV												
15...	1300	2000	52	6.7	9.0	8.0	1	10.6	96	9	<1	26
DEC												
13...	1000	1420	55	7.1	2.0	5.0	2	11.1	108	6	<1	--
JAN												
10...	1100	1640	60	--	-8.0	2.0	2	12.1	94	8	B3	--
FEB												
14...	1130	1460	56	6.9	7.5	5.0	1	12.4	104	1	B3	23
MAR												
14...	1045	2420	70	7.2	4.0	4.5	1	13.7	114	12	B10	--
APR												
11...	1100	4200	59	6.9	15.0	9.5	1	11.7	110	8	69	24
MAY												
09...	1030	6220	66	7.2	14.5	12.0	2	10.7	107	1	<1	--
JUN												
06...	1130	3810	62	7.4	22.0	16.5	1	9.9	109	14	<1	--
AUG												
01...	1200	628	66	7.2	29.5	25.0	1	7.7	99	8	<1	--
22...	1115	662	64	7.2	14.5	24.0	1	7.9	100	0	B22	25
SEP												
19...	1130	1250	65	6.8	15.5	16.0	1	8.4	91	11	B13	--

DATE	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
OCT												
18...	--	--	--	--	--	--	--	33	0	27	--	--
NOV												
15...	6	7.0	2.0	1.3	10	.1	.7	24	0	20	3.9	.6
DEC												
13...	--	--	--	--	--	--	--	20	0	16	--	--
JAN												
10...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
14...	7	6.1	1.8	1.5	12	.1	.6	20	0	16	6.7	3.9
MAR												
14...	--	--	--	--	--	--	--	24	0	20	--	--
APR												
11...	6	6.5	1.9	1.3	10	.1	.7	22	0	18	7.4	5.4
MAY												
09...	--	--	--	--	--	--	--	34	0	28	11	3.1
JUN												
06...	--	--	--	--	--	--	--	32	0	26	--	--
AUG												
01...	--	--	--	--	--	--	--	27	0	22	--	--
22...	0	6.8	1.9	1.7	13	.1	.7	36	0	30	13	.6
SEP												
19...	--	--	--	--	--	--	--	26	0	21	--	--

12419000 SPOKANE RIVER NEAR POST FALLS, ID--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (NO3) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT 18...	7.1	42	.06	225	.01	.00	.04	.04	.05	.22	.01
NOV 15...	7.4	43	.06	232	.03	.02	.00	.00	.03	.13	.02
DEC 13...	9.0	54	.07	207	.09	.00	.46	.46	.55	2.4	.03
JAN 10...	8.7	36	.05	159	.09	.01	.10	.11	.20	.89	.02
FEB 14...	7.8	45	.06	177	.03	.00	.11	.11	.14	.62	.02
MAR 14...	7.9	49	.07	320	.01	.01	.34	.35	.36	1.6	.06
APR 11...	7.8	50	.07	576	.06	.01	.05	.06	.12	.53	.02
MAY 09...	6.9	35	.05	584	.01	.00	.13	.13	.14	.62	.01
JUN 06...	6.4	34	.05	350	.01	.00	.06	.06	.07	.31	.01
AUG 01...	5.7	36	.05	61.0	.00	.00	.15	.15	.15	.66	.04
22...	6.3	41	.06	73.3	.01	.00	.03	.03	.04	.18	.04
SEP 19...	6.3	33	.04	111	.03	.02	.11	.13	.16	.71	.00

DATE	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	OIL AND GREASE (MG/L)
OCT 18...	1	<10	0	260	80	<100	.0	0	160	1.5	--
NOV 15...	0	--	0	20	40	<100	.0	0	180	1.7	0
DEC 13...	1	<10	0	330	40	<100	.0	0	310	1.3	0
JAN 10...	1	<10	0	100	60	<100	.0	0	210	1.7	0
FEB 14...	0	<10	0	20	40	<100	.0	0	190	1.0	0
MAR 14...	1	<10	0	320	90	<100	.2	0	260	1.8	0
APR 11...	0	10	0	20	90	<100	.0	0	230	1.3	0
MAY 09...	1	<10	0	200	120	100	.0	0	290	1.4	0
JUN 06...	0	<10	0	20	60	<100	.7	0	190	.9	0
AUG 01...	1	<10	0	120	20	<100	.0	0	160	1.4	0
22...	0	<10	20	<10	0	<100	.2	0	100	1.6	0
SEP 19...	0	<10	20	<10	0	<100	.1	0	120	1.1	0

12419495 SPOKANE RIVER AT STATELINE BRIDGE NEAR GREENACRES, WA

LOCATION.--Lat 47°41'55", long 117°02'37", in NW¼NW¼ sec.6, T.25 N., R.46 E., Spokane County, Hydrologic Unit 17010305, at I-90 bridge, 0.1 mi (0.2 km) west of Washington-Idaho border, 5.5 mi (8.8 km) northeast of Greenacres and at mile 96.0 (154.5 km).

DRAINAGE AREA.--3,870 mi² (10,020 km²), approximately.

PERIOD OF RECORD.--Water year 1973, October 1976 to September 1977 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)
OCT								
12...	0930	1850	55	14.5	9	10	14.0	.02
18...	1000	1880	65	12.7	3	10	13.3	.02
NOV								
08...	0930	1900	50	9.2	6	8	14.0	.01
15...	1000	1670	65	7.3	6	3	12.0	.02
DEC								
06...	1015	1380	60	3.6	--	--	11.0	.07
13...	1130	1380	60	4.7	--	5	11.0	.06
JAN								
10...	1115	1540	66	.8	3	2	10.6	.09
24...	0930	1610	60	1.6	12	8	11.3	.05
FEB								
07...	1000	2550	53	1.6	--	10	8.8	.05
14...	1035	1380	50	4.2	3	6	12.0	.06
MAR								
07...	1040	1660	55	6.2	8	10	11.8	.01
21...	0905	2230	65	4.6	6	6	16.0	.00
APR								
04...	0955	2290	57	7.6	1	6	11.7	.02
18...	0955	4190	67	7.7	3	4	12.0	.00
MAY								
02...	1000	3650	75	11.1	3	8	10.7	.01
16...	0945	5200	66	10.8	10	7	10.0	.03
JUN								
06...	0945	3570	95	17.0	--	10	8.3	.01
20...	1010	2230	60	19.0	--	3	--	.00
JUL								
13...	1015	1360	75	24.3	10	8	10.0	.03
25...	1045	913	65	21.7	10	3	--	.05
AUG								
08...	1345	646	50	25.6	--	3	13.0	.02
22...	0900	682	60	22.7	--	2	12.0	.02
SEP								
07...	0910	1230	72	17.0	--	2	14.2	.01
26...	0845	1360	85	13.7	--	1	9.0	.05

DATE	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT								
12...	.07	.03	.00	0	3	9	.6	50
18...	.05	.02	.00	0	1	9	.0	100
NOV								
08...	.02	.02	.00	0	3	19	.0	120
15...	.02	.02	.00	0	3	19	.0	140
DEC								
06...	.04	.06	.01	0	2	34	.2	170
13...	.01	.03	.01	0	2	44	.0	160
JAN								
10...	.02	.06	.01	0	1	21	.1	150
24...	.03	.03	.00	0	4	50	.0	140
FEB								
07...	.04	.02	.01	0	2	31	.0	160
14...	.03	.03	.01	0	0	45	.1	160
MAR								
07...	.02	.03	.00	0	2	63	.0	170
21...	.04	.03	.00	0	1	63	.0	100
APR								
04...	.02	.03	.00	0	0	60	.0	160
18...	.02	.02	.00	0	0	36	.0	170
MAY								
02...	.04	.02	.00	0	1	65	.5	170
16...	.02	.03	.00	3	2	75	.0	170
JUN								
06...	.02	.02	.00	10	2	92	2.4	150
20...	.03	.02	.00	0	1	27	.0	120
JUL								
13...	.09	.06	.02	0	4	33	.1	120
25...	.05	.03	.01	0	1	65	.0	110
AUG								
08...	.04	.02	.01	0	3	66	.0	90
22...	.02	.04	.01	0	3	100	.0	80
SEP								
07...	.04	.03	.01	0	2	63	.0	80
26...	.06	.03	.01	10	3	65	.0	100

12419500 SPOKANE RIVER ABOVE LIBERTY BRIDGE, NEAR OTIS ORCHARDS, WA

LOCATION.--Lat 47°40'56", long 117°05'05", in NW¼ sec.11, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on left bank 1.2 mi (1.9 km) upstream from Liberty Bridge, 1.8 mi (2.9 km) southeast of Otis Orchards, 3.3 mi (5.3 km) northeast of Greenacres, and at mile 93.9 (151.1 km).

DRAINAGE AREA.--3,880 mi² (10,050 km²), approximately.

PERIOD OF RECORD.--January 1929 to December 1936, March 1937, August 1937 to August 1941, October 1941 to October 1942, February to May 1943, August 1943 to November 1946, February to July 1947, September 1947 to February 1948, May to November 1948, March to November 1949, and April to September 1950 (monthly discharge only); October 1950 to current year. Chemical analyses July 1959 to September 1971, water temperatures December 1963 to September 1965.

GAGE.--Water-stage recorder. Datum of gage is 2,000 ft (609.6 m) above mean sea level (levels by Washington Water Power Co.).

REMARKS.--Records excellent. Flow partly regulated by dam at Post Falls, Idaho, 8.2 mi (13.2 km) upstream and affected by storage in Coeur d'Alene Lake. Rathdrum Prairie Canal, 12.7 mi (20.4 km) upstream, diverts water for irrigation of about 3,000 acres (12 km²) above station.

AVERAGE DISCHARGE.--41 years (water years 1930-36, 1938-40, 1942, 1944-46, 1951-77), 6,156 ft³/s (174.3 m³/s), 4,460,000 acre-ft/yr (5,500 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,100 ft³/s (1,420 m³/s) Dec. 23, 1933, gage height, 22.24 ft (6.779 m); minimum daily discharge, 38 ft³/s (1.08 m³/s) July 20, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,550 ft³/s (214 m³/s) May 11, 13, gage height, 13.06 ft (3.981 m); minimum daily discharge, 38 ft³/s (1.08 m³/s) July 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1830	1880	1300	1520	1570	1520	2240	3770	5280	1200	620	1160
2	1830	1880	1300	1520	1570	1650	2190	4030	5240	760	638	1160
3	1830	1890	1310	1520	1420	1630	2230	5250	5060	690	638	1170
4	1840	1880	1320	1520	1300	1570	2270	6320	4330	495	641	1160
5	1830	1900	1320	1530	1350	1570	2320	6030	3590	526	643	1190
6	1830	1890	1330	1530	1360	1560	2450	5550	3480	646	644	1180
7	1820	1500	1320	1530	1360	1590	2520	5730	3730	712	657	1180
8	1820	1890	1320	1540	1360	1630	3080	6210	3970	775	648	1190
9	1830	1890	1320	1540	1360	1800	3260	6190	4000	874	636	1190
10	1840	1890	1320	1540	1370	2030	3610	6720	4270	906	644	1180
11	1840	1900	1310	1530	1370	2100	4170	7360	4470	1300	644	1170
12	1840	1910	1310	1550	1360	2300	3780	7510	4640	1310	656	1170
13	1840	1920	1310	1550	1370	2390	4240	6060	4110	1310	643	1160
14	1840	1930	1310	1550	1390	2420	4250	6310	3630	1300	639	1170
15	1850	1920	1310	1550	1300	2410	4260	6000	3640	1240	535	1170
16	1860	1910	1310	1560	1310	2390	4280	5360	3220	1320	100	1180
17	1860	1910	1310	1560	1300	2350	4270	5300	2510	1240	334	1180
18	1860	1910	1310	1560	1300	2340	4290	5370	2320	72	644	1170
19	1860	1790	1310	1550	1300	2230	4250	5300	2220	42	617	1180
20	1860	1310	1310	1540	1300	2180	4300	5190	2090	38	590	1210
21	1870	1310	1310	1550	1300	2240	4300	6070	1640	141	596	1210
22	1880	1310	1310	1560	1450	2230	4270	5360	1630	750	570	1200
23	1880	1310	1320	1560	1630	2160	4100	5340	1630	740	574	1250
24	1880	1310	1330	1560	1490	2130	4110	5330	1620	749	505	1330
25	1890	1310	1330	1560	1530	2130	3710	5320	1510	761	570	1320
26	1880	1300	1340	1560	1660	2160	3680	5340	1530	981	609	1460
27	1880	1310	1330	1560	1650	2100	3880	5610	1520	1070	654	1640
28	1880	1300	1410	1560	1660	2190	3980	5750	1540	747	649	1640
29	1880	1300	1500	1560	---	2100	3880	5700	1540	750	638	1700
30	1880	1300	1500	1550	---	2100	3870	5320	1530	756	629	1770
31	1880	---	1510	1550	---	2200	---	5300	---	730	670	---
TOTAL	57490	49960	41450	47920	40030	63800	108160	175840	91500	25002	18769	38040
MEAN	1855	1665	1337	1546	1430	2058	3605	5672	3050	807	605	1268
MAX	1890	1930	1510	1560	1660	2420	4300	7510	5280	1320	670	1770
MIN	1820	1300	1300	1520	1300	1520	2190	3770	1510	38	100	1160
AC-FT	114000	99100	82220	95050	79400	126500	214500	348800	181500	49590	37230	75450

CAL YR 1976 TOTAL 2455070 MEAN 6710 MAX 29400 MIN 1070 AC-FT 4871000
WTR YR 1977 TOTAL 757961 MEAN 2077 MAX 7510 MIN 38 AC-FT 1503000

12419800 NEWMAN LAKE NEAR NEWMAN LAKE, WA

LOCATION.--Lat 47°45'52", long 117°05'47", in NE¼SE¼ sec.10, T.26 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on southwest shore 3.0 mi (4.8 km) northwest of town of Newman Lake.

DRAINAGE AREA.--28.6 mi² (74.1 km²).

PERIOD OF RECORD.--September 1958 to March 1968 (fragmentary); April 1968 to January 1970; February 1970 to current year (fragmentary). Chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Altitude of gage is 2,120 ft (646 m), from topographic map. Apr. 4, 1968 to Jan. 27, 1970, water-stage recorder at site 0.7 mi (1.1 km) northeast across lake at same datum.

REMARKS.--Lake elevation regulated by concrete headworks at outlet. Many small diversions for domestic use by pumping from lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 11.62 ft (3.542 m) Jan. 29, 1974; minimum observed, 7.14 ft (2.176 m) Sept. 22, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 9.89 ft (3.014 m) Oct. 2; minimum observed, 7.14 ft (2.176 m) Sept. 22.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	8.46	---	---	---
2	9.89	---	---	8.16	7.96	---	8.36	---	---	---	7.72	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	8.50	---	---	---	---	---	8.52	---	7.70	---
5	---	9.38	---	---	7.92	8.18	---	8.40	---	---	---	---
6	---	9.30	---	8.04	---	---	8.36	---	---	8.02	7.68	---
7	---	---	---	---	---	---	---	8.39	---	---	---	7.30
8	---	---	---	---	---	---	---	---	8.48	---	7.60	---
9	9.50	---	---	---	7.90	---	8.37	---	---	7.99	---	---
10	---	---	---	---	---	---	---	---	---	---	7.58	7.26
11	---	---	8.38	---	---	---	---	8.42	8.46	---	---	---
12	---	---	---	7.86	7.97	8.20	---	---	---	---	---	7.24
13	---	---	---	---	---	---	8.39	---	---	---	7.54	---
14	---	9.04	---	---	---	---	---	8.42	---	7.95	---	---
15	---	---	---	---	7.94	---	8.38	---	8.46	---	---	---
16	---	---	8.26	---	7.94	8.25	8.39	---	---	7.88	---	---
17	---	8.80	---	---	---	---	---	---	---	---	---	7.18
18	---	---	8.24	---	---	---	---	---	8.42	---	7.46	---
19	---	---	---	---	7.96	8.28	---	8.43	---	---	---	---
20	---	---	---	8.08	---	---	8.37	---	---	7.88	7.40	---
21	---	---	---	---	---	---	---	8.47	8.38	---	---	---
22	---	---	8.21	---	---	---	---	---	8.36	---	---	7.14
23	9.40	---	---	---	8.00	8.32	8.37	---	---	7.82	---	---
24	---	---	---	---	---	---	---	---	---	---	---	7.18
25	---	8.78	8.20	---	---	---	---	8.44	8.25	---	7.36	---
26	---	---	---	---	8.04	8.34	---	---	---	---	---	---
27	---	8.76	---	---	---	---	8.37	---	---	---	---	7.18
28	---	---	8.20	---	---	---	---	8.44	---	7.80	---	---
29	---	8.66	---	---	---	---	---	---	8.04	---	---	7.20
30	9.38	---	---	---	---	8.36	8.35	---	---	7.76	---	---
31	---	---	---	---	---	---	---	---	---	---	7.32	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

12420000 LIBERTY LAKE AT LIBERTY LAKE, WA

LOCATION.--Lat 47°39'09", long 117°05'20", in NE¼ sec.22, T.25 N., R.45 E., Spokane County, Hydrologic Unit 17010305, on right wall of concrete outlet flume at town of Liberty Lake, 15 mi (24.1 km) east of Spokane.

DRAINAGE AREA.--13.3 mi² (34.4 km²).

PERIOD OF RECORD.--December 1910 to December 1955 (fragmentary), January 1956 to current year. Chemical analyses October 1970 to September 1971.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is at mean sea level. Prior to Oct. 1, 1958, published at datum 2,046.48 ft (623.767 m) higher.

REMARKS.--Stage controlled by gates at outlet. Some pumping from lake for domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,051.81 ft (625.392 m), from high-water mark, occurred during period Jan. 19 to Feb. 3, 1974; minimum observed, 2,046.20 ft (623.682 m) Nov. 2, 1973, but may have been lower during period Oct. 1 to Nov. 1, 1973.

EXTREMES FOR CURRENT YEAR: Maximum elevation observed, 2,048.06 ft (624.249 m), Oct. 1; minimum observed, 2,046.48 ft (623.767 m) Sept. 5, 10.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2048.06	2047.74	---	---	---	---	---	---	---		---	---
2	---	---	---	---	---	---	---	2047.70	---		---	---
3	---	---	---	2047.70	---	---	---	---	2047.68		---	2046.50
4	---	---	2047.70	---	2047.70	2047.74	2047.80	---	---		---	---
5	---	2047.75	---	---	---	---	---	---	---		2046.60	2046.48
6	2048.02	---	2047.72	---	---	---	---	2047.70	---		---	---
7	---	---	---	2047.70	2047.70	2047.74	---	---	2047.66		---	---
8	---	2047.70	---	---	---	---	---	---	---		---	---
9	---	---	---	---	---	---	2047.80	2047.68	---		---	---
10	---	---	2047.70	2047.70	---	---	---	---	2047.66		---	2046.48
11	2047.98	---	---	---	2047.70	2047.74	2047.80	---	---		2046.53	---
12	---	2047.70	---	---	---	---	---	---	---		---	---
13	---	---	---	---	---	---	---	2047.66	2047.62		---	---
14	---	---	---	2047.70	---	2047.76	---	---	---		---	---
15	2047.96	---	---	---	2047.71	---	2047.80	---	---		---	---
16	---	2047.70	---	---	---	---	---	---	---		---	---
17	---	---	---	---	---	2047.76	---	2047.66	2047.60		---	---
18	2047.92	---	---	2047.70	---	---	2047.78	---	---		---	---
19	---	---	---	---	2047.70	---	---	---	---		---	---
20	---	2047.70	2047.70	---	---	---	---	2047.68	---		---	---
21	---	---	---	---	2047.70	2047.78	---	---	2047.50		---	---
22	2047.90	---	2047.68	2047.70	---	---	2047.76	---	---		---	---
23	---	2047.70	---	---	---	---	---	2047.70	---		---	---
24	---	---	---	2047.70	---	---	---	---	---		---	---
25	2047.86	---	---	---	---	2047.80	2047.74	---	---		---	---
26	---	---	---	---	2047.72	---	---	---	---		---	---
27	---	2047.70	2047.70	---	---	---	---	2047.68	2047.60		---	---
28	---	---	---	2047.70	2047.72	2047.82	---	---	---		---	---
29	2047.80	---	---	---	---	---	---	---	---		---	---
30	---	2047.78	---	---	---	---	2047.78	2047.68	---		2046.50	---
31	---	---	2047.70	2047.70	---	2047.82	---	---	---		---	---
MEAN	---	---	---	---	---	---	---	---	---		---	---
MAX	---	---	---	---	---	---	---	---	---		---	---
MIN	---	---	---	---	---	---	---	---	---		---	---

12422500 SPOKANE RIVER AT SPOKANE, WA

LOCATION.--Lat 47°39'34", long 117°26'53", in SW¼SW¼ sec.13, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010305, on right bank at Cochran Street in Spokane, 0.5 mi (0.8 km) upstream from Hangman Creek, and at mile 72.9 (117.3 km).

DRAINAGE AREA.--4,290 mi² (11,100 km²), approximately.

PERIOD OF RECORD.--April 1891 to current year. Chemical analyses October 1972 to September 1973.

REVISED RECORDS.--WSP 532: 1891-1904. WSP 1246: Drainage area. WSP 1286: 1907-9.

GAGE.--Water-stage recorder. Datum of gage is 1,696.6 ft (517.12 m) above mean sea level (river-profile survey). Prior to July 1, 1921, water-stage recorders and nonrecording gages at several sites within 4 mi (6 km) of present site at various datums.

REMARKS.--Records excellent. Flow slightly regulated by powerplants of Washington Water Power Co. at Post Falls, Idaho, 28.8 mi (46.3 km) upstream and at Spokane, 1.3 mi (2.1 km) upstream, and by Coeur d'Alene Lake, Idaho. Rathdrum Prairie Canal diverts water above station for irrigation. In 1946, approximately 22,600 acres (91 km²), of which about 15,000 acres (61 km²) utilized surface water, were under irrigation upstream from Spokane. Since 1966 irrigation has been from many wells in the valley near the river with only about 3,000 acres (12 ka²) irrigated from the river.

AVERAGE DISCHARGE.--86 years, 6,887 ft³/s (195.0 m³/s) 4,990,000 acre-ft/yr (6,150 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,000 ft³/s (1,390 m³/s), estimated, May 31, 1894 (see WSP 532); minimum, 95 ft³/s (2.69 m³/s) Sept. 19, 1956, gage height, 15.60 ft (4.755 m); minimum daily, 466 ft³/s (13.2 m³/s) Aug. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,610 ft³/s (216 m³/s) May 11, gage height, 20.85 ft (6.355 m); minimum, 286 ft³/s (8.10 m³/s) Aug. 16, gage height, 16.34 ft (4.980 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2280	2380	1900	2120	2140	2120	2740	4010	5430	1920	1020	1430
2	2230	2370	1910	2110	2150	2140	2720	4120	5470	1300	976	1430
3	2280	2370	1910	2110	2110	2190	2710	5040	5300	1320	956	1460
4	2280	2400	1930	2120	1900	2180	2730	6190	4740	1120	905	1470
5	2320	2370	1940	2110	1960	2150	2770	6060	4110	1030	992	1500
6	2290	2370	1930	2130	1980	2150	2900	5720	3830	1190	987	1510
7	2280	2140	1940	2110	1960	2130	2900	5680	4010	1210	979	1510
8	2310	2310	1910	2120	1980	2200	3280	6200	4270	1310	1000	1480
9	2260	2360	1930	2120	1960	2220	3560	6220	4230	1430	938	1500
10	2310	2380	1940	2140	1950	2490	3920	6570	4440	1290	953	1500
11	2320	2420	1880	2170	2000	2560	4290	7230	4530	1700	950	1480
12	2290	2380	1960	2120	1960	2760	4030	7420	4800	1750	956	1480
13	2320	2400	1930	2160	2010	2770	4370	6990	4490	1750	951	1480
14	2290	2430	1930	2140	1920	2850	4430	6390	3970	1750	913	1480
15	2310	2430	1940	2130	1950	2870	4470	6180	3940	1720	936	1480
16	2340	2430	1930	2110	1860	2860	4450	5540	3770	1730	657	1480
17	2320	2430	1930	2150	2020	2830	4450	5590	3000	1760	523	1500
18	2350	2420	1930	2150	1960	2810	4480	5550	2900	992	819	1520
19	2350	2430	1940	2170	1990	2820	4450	5540	2690	713	901	1510
20	2350	1970	1940	2120	1970	2830	4500	5470	2720	618	883	1560
21	2370	1900	1920	2120	1970	2720	4490	5640	2260	549	921	1570
22	2370	1930	1930	2130	1970	2750	4490	5560	2200	918	897	1560
23	2370	1930	1950	2150	2180	2710	4370	5500	2130	1090	864	1550
24	2370	1910	1950	2120	2120	2660	4280	5530	2200	1130	922	1680
25	2380	1930	1950	2130	2020	2640	4030	5500	2050	1220	870	1680
26	2380	1910	1960	2150	2220	2640	3850	5500	1990	1210	878	1710
27	2400	1930	1950	2160	2210	2670	4060	5700	2060	1600	936	1970
28	2370	1900	1940	2140	2240	2700	4090	5860	2010	1080	1010	1980
29	2360	1910	2130	2140	---	2710	4080	5940	2020	1180	953	2100
30	2400	1910	2070	2130	---	2670	4050	5530	2030	1120	912	1980
31	2370	---	2090	2150	---	2750	---	5500	---	1140	1050	---
TOTAL	72220	66370	60390	66130	56680	79350	115940	178870	103590	39840	28498	47540
MEAN	2330	2212	1948	2133	2024	2560	3865	5770	3453	1285	919	1585
MAX	2400	2430	2130	2170	2240	2870	4500	7420	5470	1920	1050	2100
MIN	2230	1900	1880	2110	1860	2120	2710	4010	1990	549	523	1430
AC-FT	143200	131600	119800	131200	112400	157400	230000	354800	205500	79020	56530	94300

CAL YR 1976 TOTAL 2682320 MEAN 7329 MAX 31200 MIN 1630 AC-FT 5320000
WTR YR 1977 TOTAL 915418 MEAN 2508 MAX 7420 MIN 523 AC-FT 1816000

12424000 HANGMAN CREEK AT SPOKANE, WA

LOCATION.--Lat 47°39'10", long 117°26'55", in NW¼ sec.24, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010306, on left bank 0.3 mi (0.5 km) downstream from bridge on Interstate 90 in Spokane and at mile 0.8 (1.3 km).

DRAINAGE AREA.--689 mi² (1,785 km²).

PERIOD OF RECORD.--April 1948 to current year. Prior to October 1958, published as Latah Creek at Spokane.

REVISED RECORDS.--WSP 1933: Drainage area. WSP 2133: 1965(P).

GAGE.--Water-stage recorder. Altitude of gage is 1,717.42 ft (523.470 m), Corps of Engineers levels of Aug. 16, 1976. Prior to Nov. 22, 1948, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum.

REMARKS.--Records fair. No regulation. Some diversions for irrigation above station.

AVERAGE DISCHARGE.--29 years, 251 ft³/s (7.108 m³/s), 4.95 in/yr (126 mm/yr), 181,800 acre-ft/yr (224 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s (583 m³/s) Feb. 3, 1963, gage height, 13.35 ft (4.069 m); minimum, 1.4 ft³/s (0.040 m³/s) Sept. 6, 7, 9, 10, 14-17, 1973, gage height, 1.47 ft (0.448 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft³/s (70.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 18	2000	*1,560	44.2	*4.93	1.503

Minimum discharge, 3.3 ft³/s (0.093 m³/s) Aug. 13, gage height, 1.37 ft (0.418 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	27	28	49	36	48	41	14	21	5.7	4.3	4.3
2	19	29	25	46	37	55	39	14	25	5.7	4.3	4.3
3	18	28	26	41	38	53	36	16	25	5.7	4.6	4.8
4	20	27	26	34	38	42	35	16	24	6.0	4.6	5.1
5	20	27	26	29	39	36	34	20	22	6.4	4.3	4.6
6	19	27	26	24	40	33	32	18	22	6.4	4.3	4.6
7	19	26	26	21	41	34	29	18	25	6.0	4.3	4.6
8	20	27	27	19	43	37	29	16	117	6.0	4.0	4.0
9	20	27	30	19	47	41	30	17	89	6.0	4.3	4.0
10	20	28	31	19	50	55	33	18	48	5.7	4.0	4.0
11	19	27	30	19	56	54	33	18	31	6.0	4.0	4.0
12	19	26	31	20	60	47	32	18	29	5.7	4.0	3.8
13	19	26	30	22	68	45	32	19	25	5.7	3.8	3.8
14	20	26	31	25	70	45	30	17	23	5.4	3.8	3.6
15	20	26	28	30	60	47	29	15	23	5.4	4.6	3.6
16	20	27	28	60	55	45	28	14	21	5.4	4.3	4.0
17	20	27	28	120	49	43	27	15	18	5.4	4.0	3.8
18	20	27	26	200	46	42	26	17	16	5.4	3.8	4.0
19	20	27	25	709	45	42	25	22	15	5.4	3.6	4.0
20	20	27	23	235	46	43	23	24	13	5.1	3.8	4.0
21	21	27	22	120	48	41	23	24	12	4.8	4.0	4.0
22	21	26	24	94	50	42	22	22	10	4.8	3.8	4.6
23	22	28	26	70	55	47	21	27	9.0	4.8	3.8	5.1
24	23	30	25	52	49	45	18	25	8.5	4.8	7.4	7.4
25	26	30	25	40	45	43	18	24	8.0	4.8	4.6	7.0
26	26	29	29	38	42	45	19	22	7.5	4.8	5.4	8.1
27	26	27	30	37	42	47	18	20	7.3	4.8	4.6	8.1
28	26	24	35	36	43	43	17	20	7.0	4.6	4.6	9.2
29	26	25	35	35	---	41	16	18	6.4	4.6	4.3	12
30	26	27	41	35	---	43	15	18	6.0	4.3	4.6	11
31	27	---	40	35	---	43	---	18	---	4.3	4.6	---
TOTAL	660	812	883	2333	1338	1367	810	584	713.7	165.9	134.4	159.4
MEAN	21.3	27.1	28.5	75.3	47.8	44.1	27.0	18.8	23.8	5.35	4.34	5.31
MAX	27	30	41	709	70	55	41	27	117	6.4	7.4	12
MIN	18	24	22	19	36	33	15	14	6.0	4.3	3.6	3.6
AC-FT	1310	1610	1750	4630	2650	2710	1610	1160	1420	329	267	316

CAL YR 1976 TOTAL 83488.0 MEAN 228 MAX 5320 MIN 14 AC-FT 165600
WTR YR 1977 TOTAL 9960.4 MEAN 27.3 MAX 709 MIN 3.6 AC-FT 19760

12424003 HANGMAN CREEK AT MOUTH AT SPOKANE, WA

LOCATION.--Lat 47°39'17", long 117°27'12", on west line of NW¼ sec.24, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010306, at bridge on Riverside Avenue at west edge of Spokane and 0.6 mi (1.0 km) upstream from mouth.

DRAINAGE AREA.--689 mi² (1,785 km²), approximately.

PERIOD OF RECORD.--Water years 1973, October 1976 to September 1977.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data for the bimonthly water-quality samples listed below furnished by Washington State Department of Ecology. Coliform analyses for the diel study were performed by the Wasington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
OCT											
12...	1030	20	300	12.8	21	20	11.7	1.0	.12	.10	.02
18...	1045	22	300	6.7	6	15	11.0	1.0	.05	.09	.03
NOV											
08...	1050	27	300	7.4	4	15	10.0	1.0	.08	.08	.04
15...	1040	26	300	4.5	20	5	10.9	1.1	.05	.07	.04
DEC											
06...	1120	26	305	1.9	80	150	9.0	1.2	.05	.08	.04
13...	1245	28	300	2.7	--	40	8.2	1.2	.03	.07	.04
JAN											
10...	1250	*21	301	.3	27	40	9.9	1.9	.05	.10	.08
24...	1015	*54	170	.9	24	10	8.6	1.6	1.8	.74	.15
FEB											
07...	1030	*41	244	1.4	--	110	7.6	1.6	.25	.20	.12
14...	1110	*48	270	2.4	6	100	9.3	1.3	.60	.40	.09
MAR											
07...	1125	36	250	6.7	39	35	8.3	.93	.18	.14	.06
21...	0940	41	250	5.4	26	30	9.7	1.1	.11	.19	.06
APR											
04...	1100	35	230	9.6	7	15	8.3	.88	.13	.12	.06
18...	1030	26	237	9.7	12	25	9.1	.42	.10	.07	.02
MAY											
02...	1035	14	298	14.0	18	25	8.1	.87	.18	.09	.05
16...	1025	14	297	12.0	15	4	8.3	.83	.10	.09	.05
JUN											
06...	1030	22	332	19.2	--	65	7.0	.46	.10	.10	.05
20...	1115	16	315	19.2	--	30	--	1.7	.56	.47	.15
JUL											
13...	1115	5.8	300	20.3	23	40	8.8	1.3	.17	.13	.03
25...	1130	4.9	315	21.1	21	8	--	1.7	.19	.14	.04
AUG											
08...	1415	4.2	305	26.6	--	30	9.8	1.4	.15	.10	.06
22...	0940	3.8	325	19.3	--	45	9.7	1.5	.10	.07	.04
30...	0715	4.6	395	14.0	--	4	7.9	1.5	.10	.10	.06
30...	1355	4.6	382	20.6	--	1	13.4	1.4	.09	.06	.04
SEP											
07...	0950	4.3	365	15.2	--	20	9.9	1.4	.11	.06	.03
26...	0925	7.8	330	10.5	--	10	11.9	1.2	.11	.08	.04

*Mean daily discharge.

12424003 HANGMAN CREEK AT MOUTH AT SPOKANE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM .7UM-MF (COL./ 100 ML)	HARD-NESS (CA,MG) (MG/L)
AUG											
30...	0715	5.2	395	8.3	14.0	4	7.9	81	120000	2000	180
30...	0910	4.9	379	8.2	14.2	--	8.0	83	--	--	--
30...	1110	4.9	386	8.4	16.3	--	11.5	124	--	--	--
30...	1200	4.9	377	8.6	17.9	--	12.6	140	--	--	--
30...	1245	4.9	379	8.7	18.8	--	--	--	--	--	--
30...	1355	4.9	382	8.8	20.6	1	13.4	157	85000	95	--
30...	1520	4.9	372	--	21.6	--	13.7	164	--	--	--
30...	1615	4.9	369	8.9	21.8	--	13.1	157	--	--	--
30...	1755	4.6	369	8.8	20.6	--	11.2	132	--	--	--
30...	1910	4.6	378	8.8	19.2	--	10.1	115	--	--	--
30...	2150	4.6	386	8.4	16.7	2	8.2	89	82500	180	--
30...	2335	4.6	392	7.8	15.6	--	8.0	85	--	--	--
31...	0120	4.6	381	8.2	14.6	--	8.0	82	--	--	--
31...	0320	4.6	371	8.0	14.1	2	8.2	84	83200	300	--
31...	0525	4.6	370	8.0	13.7	--	8.2	83	--	--	--
31...	0700	4.6	360	7.9	13.2	--	8.4	85	--	--	--

DATE	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
AUG										
30...	9	49	15	11	4.5	213	0	180	1.7	20
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	197	0	176	.5	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	SUS-PENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)
AUG										
30...	9.3	.2	27	241	21	1.5	.10	.37	.10	.06
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	2	1.4	.09	.25	.06	.04
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

12424100 SPOKANE RIVER AT FORT WRIGHT BRIDGE AT SPOKANE, WA

LOCATION.--Lat 47°40'50", long 117°27'07", in SW¼NW¼ sec.12, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010307, at Fort Wright bridge on west edge of Spokane, 2.6 mi (4.2 km) downstream from Hangman Creek and at mile 68.9 (110.9 km).

DRAINAGE AREA.--4,990 mi² (12,920 km), approximately.

PERIOD OF RECORD.--Water years 1975, Aug. 30 to Aug. 31, 1977 (discontinued).

WATER QUALITY DATA, AUGUST 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
AUG											
30...	0845	1020	175	7.8	13.8	0	8.8	90	B1000	B140	90
30...	0935	993	179	8.1	14.3	--	9.2	95	--	--	--
30...	1135	950	185	8.3	15.1	--	9.7	101	--	--	--
30...	1220	940	185	8.4	15.5	--	9.9	104	--	--	--
30...	1330	920	181	8.5	16.1	--	9.9	106	<10	<2	--
30...	1430	915	181	8.5	16.2	0	9.8	105	B40	87	--
30...	1550	855	182	8.5	16.1	--	9.5	102	--	--	--
30...	1730	855	180	8.4	15.8	--	9.5	101	--	--	--
30...	1845	855	180	8.5	15.5	--	9.3	99	--	--	--
30...	2130	870	170	7.8	15.0	0	9.0	94	B360	62	--
30...	2315	870	180	7.8	14.7	--	8.8	91	--	--	--
31...	0105	915	180	7.7	14.6	--	8.7	90	--	--	--
31...	0255	985	170	7.2	14.4	0	8.9	92	--	--	--
31...	0505	1030	165	7.4	14.4	--	8.9	91	--	--	--
31...	0645	1100	165	7.4	13.8	--	8.9	90	--	--	--

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
AUG										
30...	10	22	8.5	2.5	1.4	97	0	80	2.5	8.5
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	98	1	82	.5	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
AUG										
30...	1.4	.1	9.0	101	0	.45	.06	.14	.01	.00
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	5	.51	.05	.14	.01	.00
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA
(National Water Quality Surveillance System)

LOCATION.--Lat 47°41'48", long 117°29'48", in SE¼NE¼ sec.4, T.25 N., R.42 E., Spokane County, Hydrologic Unit 17010307, at Riverside State Park on west edge of Spokane, and at mile 66.1 (106.4 km).

DRAINAGE AREA.--5,010 mi² (12,980 km²), approximately.

PERIOD OF RECORD.--Water years 1973 to current year.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, and specific conductance for half of the water-quality samples listed below furnished by Washington State Department of Ecology. For the diel study, the coliform analyses were performed by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	DIS-CHARGE (CFS)	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	CLOUD COVER (PER-CENT)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	CHEM-ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	FECAL COLI-FORM .7UM-MF (COL./100 ML)	DIS-SOLVED SILICA (SIO2) (MG/L)
OCT												
05...	1000	--	2270	156	7.3	100	13.0	1	9.5	17	3000	8.1
12...	1100	2520	--	160	--	--	13.7	25	8.9	--	--	--
NOV												
04...	0945	--	2520	125	7.5	100	9.2	1	10.4	14	B26	8.4
15...	1110	2480	--	140	--	--	14.5	8	9.0	--	--	--
30...	1330	--	2020	183	7.9	0	5.8	1	12.0	3	11	9.3
DEC												
13...	1330	2010	--	160	--	--	5.8	25	9.1	--	--	--
JAN												
07...	1215	--	2250	154	7.5	30	2.7	1	11.8	100	320	9.2
24...	1045	2160	--	120	--	--	3.6	6	12.0	--	--	--
25...	1130	--	2170	155	7.6	100	4.8	2	12.1	0	--	9.2
FEB												
14...	1140	2030	--	120	--	--	6.3	20	9.8	--	--	--
22...	1300	--	2050	167	8.0	95	6.6	--	13.0	8	28	9.2
MAR												
21...	1005	2050	--	140	--	--	5.7	15	12.3	--	--	--
22...	0930	--	2090	152	7.1	60	5.2	2	11.8	21	230	8.8
APR												
18...	1100	4370	--	89	--	--	8.2	20	10.1	--	--	--
19...	1000	--	4550	73	7.6	0	6.4	1	12.2	15	120	8.0
MAY												
16...	1145	5730	--	100	--	--	11.6	9	11.6	--	--	--
17...	1430	--	5760	113	7.4	95	11.4	1	11.1	19	120	7.3
JUN												
15...	1030	--	4090	97	8.2	50	17.6	0	11.3	3	B240	7.7
20...	1145	2750	--	148	--	--	18.1	20	--	--	--	--
JUL												
14...	1000	--	1770	140	8.0	0	16.6	1	8.5	13	530	9.2
25...	1150	1250	--	140	--	--	19.0	4	--	--	--	--
AUG												
12...	1500	--	1020	190	8.2	30	19.8	--	9.5	26	4500	9.5
22...	1010	946	--	140	--	--	18.4	8	11.2	--	--	--
30...	0730	--	1020	166	7.4	--	14.6	1	8.8	--	--	9.2
30...	1330	947	946	197	7.8	--	15.9	1	9.5	--	--	--
SEP												
26...	0950	1710	--	180	--	--	12.4	2	9.4	--	--	--
29...	1115	--	2120	139	7.7	100	12.0	--	9.5	1	B170	7.7

B Results based upon colony counts outside the ideal range.

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	SUS-PENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT												
05...	72	.10	441	7	.30	.25	.37	.62	.92	.12	.06	1.0
12...	--	--	--	--	--	.38	.61	.99	--	.11	.06	--
NOV												
04...	91	.12	619	11	.35	.21	.27	.48	.83	.11	.08	1.6
15...	--	--	--	--	--	.34	.27	.61	--	.10	.06	--
30...	98	.13	534	7	.43	.48	.34	.82	1.2	.16	.11	1.7
DEC												
13...	--	--	--	--	--	.50	.41	.91	--	.17	.10	--
JAN												
07...	92	.13	559	2	.47	.79	.11	.90	1.4	.15	.10	2.6
24...	--	--	--	--	--	.62	1.3	1.9	--	.16	.08	--
25...	89	.12	521	6	.42	.38	.31	.69	1.1	.15	.11	3.8
FEB												
14...	--	--	--	--	--	.48	.30	.78	--	.15	.09	--
22...	91	.12	506	0	.40	.51	.35	.86	1.3	.17	.11	2.3
MAR												
21...	--	--	--	--	--	.20	.24	.44	--	.09	.02	--
22...	78	.11	609	2	.26	.26	.10	.36	.62	.10	.07	2.6
APR												
18...	--	--	--	--	--	.24	.24	.48	--	.08	.04	--
19...	66	.09	811	5	.13	.14	.31	.45	.58	.08	.05	2.4
MAY												
16...	--	--	--	--	--	.22	.19	.41	--	.06	.02	--
17...	55	.07	855	4	.09	.23	.19	.42	.51	.08	.04	2.5
JUN												
15...	57	.08	624	3	.17	.15	.17	.32	.49	.07	.04	2.9
20...	--	--	--	--	--	.35	.39	.74	--	.11	.03	--
JUL												
14...	91	.12	435	1	.31	.30	.36	.66	.97	.12	.09	2.5
25...	--	--	--	--	--	.58	.52	1.1	--	.17	.09	--
AUG												
12...	114	.16	314	2	.56	.94	.36	1.3	1.9	.29	.18	3.0
22...	--	--	--	--	--	.43	.31	.74	--	.19	.13	--
30...	--	.15	300	1	.48	.50	.12	.62	1.1	.28	.16	--
30...	--	--	--	3	.49	.68	.16	.84	1.3	.28	.23	--
SEP												
26...	--	--	--	--	--	.08	.14	.22	--	.13	.12	--
29...	75	.10	429	6	.29	.03	.19	.22	.51	.05	.03	1.8

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	TOTAL CAL- CIUM (CA) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
JAN										
07...	1215	63	1	16	16	5.8	5.5	4.3	3.8	11
MAR										
22...	0930	55	7	13	14	4.5	4.8	3.0	3.2	11
JUN										
15...	1030	48	12	11	13	3.9	3.7	2.5	2.6	10
AUG										
30...	0730	92	10	--	23	--	8.4	--	4.5	9
30...	1330	--	--	--	--	--	--	--	--	--
SEP										
29...	1115	59	9	13	15	5.4	5.3	3.4	3.7	12

DATE	SODIUM AD- SORP- TION RATIO	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
JAN										
07...	.2	1.3	1.3	75	0	62	3.8	13	3.0	89
MAR										
22...	.2	1.1	1.1	58	0	48	7.4	12	2.4	75
JUN										
15...	.2	1.0	1.0	44	0	36	.4	15	3.7	68
AUG										
30...	.2	--	1.7	100	0	82	6.4	9.4	3.0	109
30...	--	--	--	105	--	86	2.7	--	--	--
SEP										
29...	.2	1.2	1.1	61	0	50	1.9	11	2.7	77

DATE	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)
JAN									
07...	2	<10	0	<10	80	<100	.0	0	140
MAR									
22...	1	<10	0	<10	240	<100	.2	0	170
JUN									
15...	1	<10	0	<10	100	<100	.0	0	130
AUG									
30...	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--
SEP									
29...	1	<10	1	<10	30	<100	.0	0	110

12424200 SPOKANE RIVER AT RIVERSIDE STATE PARK, AT SPOKANE, WA--Continued

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
AUG											
30...	0730	1020	186	7.6	14.6	1	8.8	91	800	<2	92
30...	0930	993	186	7.6	14.8	--	8.9	93	--	--	--
30...	1015	986	189	8.0	14.8	--	8.9	93	--	--	--
30...	1155	981	193	7.8	15.4	--	9.4	99	--	--	--
30...	1330	946	197	7.8	15.9	1	9.5	101	--	--	--
30...	1530	911	206	7.8	16.4	--	10.2	110	--	--	--
30...	1725	881	191	7.8	16.9	--	9.9	108	--	--	--
30...	1900	877	195	7.7	16.6	--	9.6	106	--	--	--
30...	2050	876	202	8.1	16.4	1	9.4	101	--	--	--
30...	2250	896	215	7.9	15.8	--	9.5	101	--	--	--
31...	0040	909	206	8.0	15.4	--	9.1	95	--	--	--
31...	0230	967	210	7.7	14.8	1	9.1	95	180	82	--
31...	0440	1040	170	7.6	14.2	--	8.9	91	--	--	--
31...	0625	1110	165	7.5	13.8	--	8.9	91	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
AUG										
30...	10	24	8.6	4.5	1.7	100	0	82	6.4	9.6
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	105	0	86	2.7	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
AUG										
30...	3.6	.1	9.2	108	1	.08	.50	.62	.20	.16
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	3	.09	.68	.84	.28	.23
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

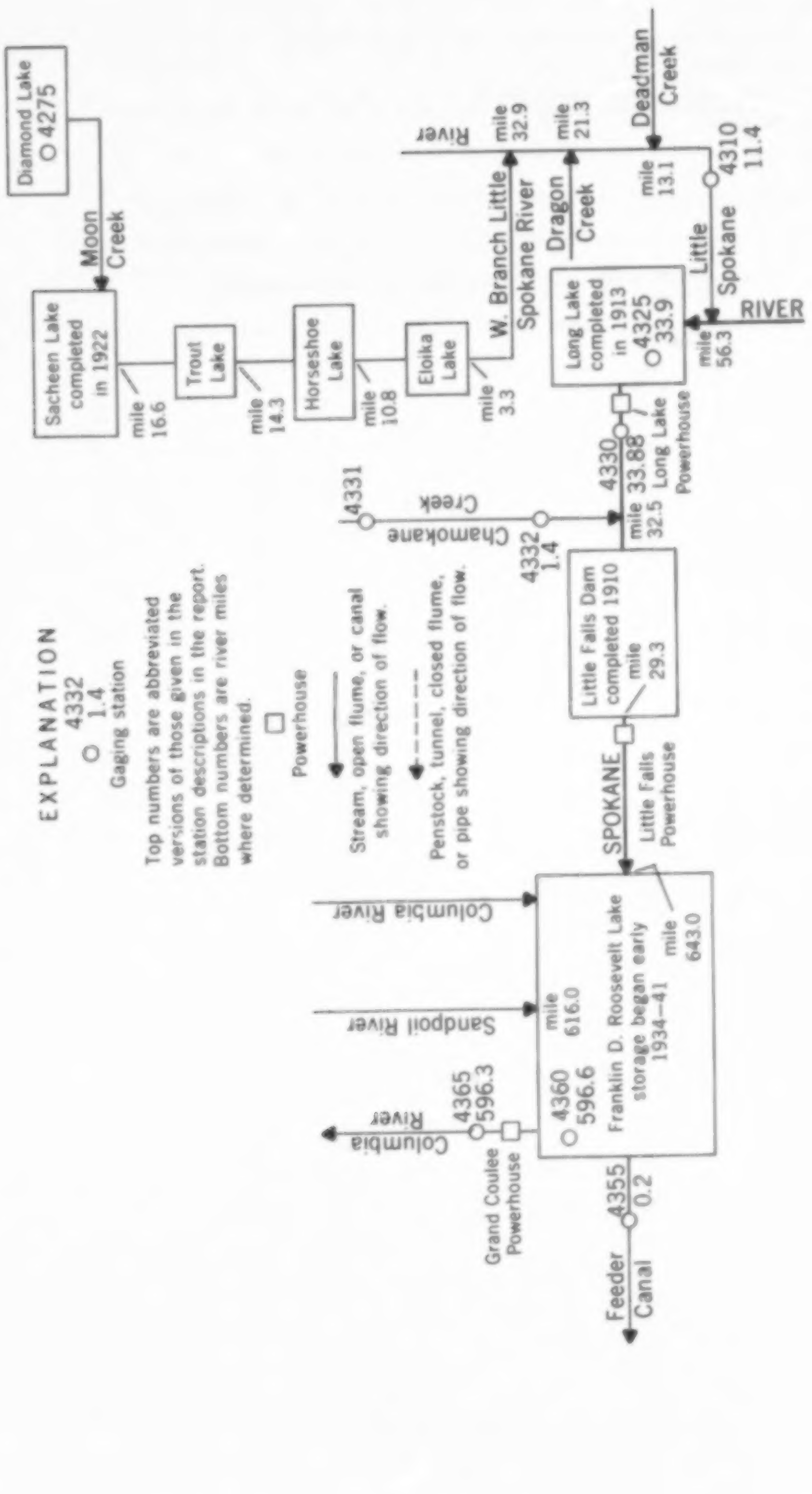
EXPLANATION
○ 4332 1.4
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
□ Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Diamond Lake
○ 4275
Moon Creek
Sacheen Lake completed in 1922
mile 16.6
Trout Lake
mile 14.3
Horseshoe Lake
mile 10.8
Eloika Lake
mile 3.3
W. Branch Little Spokane River
mile 32.9
Dragon Creek
mile 21.3
Deadman Creek
mile 13.1
River
Little Spokane
4310
11.4
RIVER
mile 56.3
Long Lake completed in 1913
4325
33.9
Long Lake Powerhouse
4330
33.88
mile 32.5
4331
Chamokane Creek
4332
1.4
Little Falls Dam completed 1910
mile 29.3
Little Falls Powerhouse
SPOKANE
Columbia River
Sandpoil River
mile 643.0
mile 616.0
4360
596.6
Franklin D. Roosevelt Lake storage began early 1934–41
4365
596.3
Columbia River
Grand Coulee Powerhouse
4355
0.2
Feeder Canal

Figure 9. Gaging stations in Spokane River basin from Little Spokane River downstream and at Grand Coulee Dam.
]

12427500 DIAMOND LAKE NEAR NEWPORT, WA

LOCATION.--Lat 48°07'59", long 117°12'03", in SE¼NW¼ sec.2, T.30 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010308, on north shore at Boy Scouts of America Camp Cowles, 8 mi (13 km) southwest of Newport.

DRAINAGE AREA.--17.4 mi² (45.1 km²).

PERIOD OF RECORD.--July 1953 to current year (fragmentary), chemical analyses October 1971 to September 1972.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Altitude of gage is about 2,340 ft (713 m), from topographic map. Prior to Sept. 9, 1961, nonrecording gage on southeast shore, and Sept. 9, 1961, to Sept. 20, 1967, nonrecording gage 500 ft (152 m) downlake, at same datum.

REMARKS.--No known regulation. Some diversion for domestic use. Gage heights to top of ice Jan. 2, 5, 9, 12, 30, Feb. 2, 6, 9, Mar. 6.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 4.95 ft (1.509 m), Feb. 25, 1958; minimum observed, 2.47 ft (0.753 m) Oct. 4, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 4.32 ft (1.317 m), Apr. 3; minimum observed, 3.18 ft (0.969 m) Aug. 4.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	3.92	---	---	---	---	4.16	4.08		---	
2	---	---	---	4.11	4.13	3.89	---	---	---		---	
3	4.08	3.96	---	---	---	---	4.32	---	---		---	
4	---	---	---	---	---	---	---	4.29	---		3.18	
5	---	---	3.92	4.11	---	---	---	---	4.10		---	
6	---	---	---	---	3.97	3.93	4.29	---	---		---	
7	4.05	3.96	---	---	---	---	---	---	---		---	
8	---	---	3.92	---	---	---	---	4.18	4.06		---	
9	---	---	---	4.13	3.93	3.97	---	---	---		---	
10	4.03	3.94	---	---	---	---	4.23	---	---		---	
11	---	---	---	---	---	---	---	4.14	---		---	
12	---	---	3.92	4.18	---	---	---	---	4.04		---	
13	4.01	---	---	---	3.91	---	4.28	---	---		---	
14	---	3.93	---	---	---	4.11	4.31	---	---		---	
15	---	---	3.92	---	---	---	---	4.17	4.01		---	
16	---	---	---	4.15	3.91	---	---	---	4.02		---	
17	3.97	3.92	3.97	---	---	4.12	4.25	---	---		---	
18	---	---	---	---	---	---	---	4.17	---		---	
19	---	---	3.92	4.13	---	---	---	---	4.01		---	
20	3.93	---	---	---	3.89	4.13	4.25	---	---		---	
21	---	3.92	---	---	---	---	---	---	---		---	
22	---	---	3.95	---	---	4.18	---	4.15	4.00		---	
23	---	---	---	4.13	3.89	---	---	---	---		---	
24	3.92	3.92	---	---	---	---	4.22	---	---		---	
25	---	---	---	---	3.89	---	---	4.14	---		---	
26	---	---	4.03	4.15	---	---	---	---	3.98		---	
27	3.94	---	---	---	3.89	4.24	4.19	---	---		---	
28	---	3.92	---	---	---	---	---	---	---		---	
29	3.93	---	4.03	---	---	---	---	4.10	3.96		---	
30	---	---	---	4.17	---	4.26	---	---	---		---	
31	3.96	---	---	---	---	---	---	---	---		---	
MEAN	---	---	---	---	---	---	---	---	---		---	
MAX	---	---	---	---	---	---	---	---	---		---	
MIN	---	---	---	---	---	---	---	---	---		---	

12431000 LITTLE SPOKANE RIVER AT DARTFORD, WA

LOCATION.--Lat 47°47'05", long 117°24'12", in NE¼NW¼ sec.5, T.26 N., R.43 E., Spokane County, Hydrologic Unit 17010308, on left bank 50 ft (15 m) upstream from county bridge, 0.5 mi (0.8 km) east of Dartford, 1.7 mi (2.7 km) downstream from Deadman Creek, 7.5 mi (12.1 km) north of Spokane, and at mile 11.4 (18.3 km).

DRAINAGE AREA.--665 mi² (1,722 km²).

PERIOD OF RECORD.--April 1929 to September 1932, December 1946 to current year, chemical analyses July 1968 to September 1970, water temperatures July 1968 to September 1970.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1930, 1932(M), 1947-49(M). WSP 1446: 1931(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,590 ft (485 m), from topographic map. Prior to Mar. 16, 1931, nonrecording gage and Mar. 16, 1931, to July 5, 1961, water-stage recorder, at site 0.3 mi (0.5 km) downstream at different datum.

REMARKS.--Records excellent. No regulation. Small diversions for irrigation above station.

AVERAGE DISCHARGE.--33 years (water years 1930-32, 1948-77), 316 ft³/s (8.949 m³/s), 6.45 in/yr (164 mm/yr), 228,900 acre-ft/yr (282 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,170 ft³/s (89.8 m³/s) Feb. 17, 1970, gage height, 7.29 ft (2.222 m); minimum observed, 63 ft³/s (1.78 m³/s) July 24, 1930, gage height, 1.07 ft (0.326 m), site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 577 ft³/s (16.3 m³/s) Feb. 11, gage height, 3.33 ft (1.015 m); minimum, 91 ft³/s (2.58 m³/s) Aug. 19, 20, 21, gage height, 1.71 ft (0.521 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	178	161	163	165	209	186	160	146	109	99	111
2	161	176	161	137	163	204	184	151	146	108	99	109
3	161	176	165	166	163	197	182	161	146	108	98	111
4	161	176	165	155	163	191	180	171	150	108	103	116
5	161	176	163	120	163	191	182	166	159	111	132	117
6	161	176	163	152	163	191	180	161	152	111	108	116
7	162	175	165	140	163	212	180	159	146	109	102	114
8	172	175	166	141	184	230	180	157	148	109	102	116
9	173	175	170	150	165	235	178	155	144	108	98	114
10	172	175	168	146	243	224	176	152	139	105	99	114
11	172	174	166	150	413	213	172	153	137	103	96	114
12	170	173	163	152	354	208	171	153	139	103	96	112
13	177	171	165	155	315	211	174	150	141	103	98	112
14	189	169	163	157	265	208	174	146	141	103	96	112
15	184	170	163	157	211	206	172	143	134	100	95	112
16	178	174	163	157	204	206	172	143	134	100	93	114
17	178	176	161	163	207	206	167	146	136	99	93	117
18	178	174	161	166	203	202	167	155	132	100	93	119
19	176	172	157	211	195	199	165	159	130	102	92	119
20	176	170	152	191	183	197	163	153	129	98	92	120
21	177	168	157	176	200	195	163	152	125	98	92	120
22	177	170	157	178	210	195	161	157	126	98	95	120
23	176	168	159	168	211	202	159	155	122	96	96	120
24	178	170	159	166	198	220	157	155	126	96	105	125
25	180	178	159	165	183	213	155	153	119	100	114	129
26	180	176	166	166	181	206	153	152	117	103	114	127
27	178	165	189	165	192	202	151	152	114	103	114	126
28	178	165	176	166	195	195	150	152	112	102	112	126
29	178	170	166	165	---	191	150	152	111	100	112	127
30	178	166	163	163	---	189	150	148	109	98	112	127
31	178	---	161	163	---	189	---	148	---	98	112	---
TOTAL	5379	5177	5073	4959	5855	6337	5054	4758	4006	3191	3161	3532
MEAN	174	173	164	160	209	204	168	153	133	103	102	118
MAX	189	178	189	211	413	235	186	171	159	111	132	129
MIN	159	165	152	120	163	189	150	143	109	96	92	109
CFSM	.26	.26	.25	.24	.31	.31	.25	.23	.20	.16	.15	.18
IN.	.30	.29	.28	.28	.33	.35	.28	.27	.22	.18	.18	.20
AC-FT	10670	10270	10060	9840	11610	12570	10020	9440	7950	6330	6270	7010

CAL YR 1976 TOTAL 104565 MEAN 286 MAX 925 MIN 150 CFSM .43 IN 5.85 AC-FT 207400
WTR YR 1977 TOTAL 56481 MEAN 155 MAX 413 MIN 92 CFSM .23 IN 3.16 AC-FT 112000

12431000 LITTLE SPOKANE RIVER NEAR MOUTH, NEAR SPOKANE, WA

LOCATION.--Lat 47°47'00", long 117°31'44", in SE¼NW¼ sec.5, T.26 N., R.42 E., Spokane County, Hydrologic Unit 17010308, at Tumtum Road bridge, 5.3 mi (8.5 km) northwest of Spokane and at mile 1.1 (1.8 km).

DRAINAGE AREA.--700 mi² (1,813 km²).

PERIOD OF RECORD.--Water years 1971, 1973, October 1976 to September 1977.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data for the bimonthly water-quality samples listed below furnished by Washington State Department of Ecology. Coliform analyses for the diel study were performed by the Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)
OCT								
12...	1130	478	280	12.9	8	20	9.8	1.1
18...	1145	476	280	10.3	9	15	9.9	1.1
NOV								
08...	1150	483	250	8.5	11	6	9.6	1.0
15...	1130	481	262	14.1	7	16	10.3	1.1
DEC								
08...	1145	478	260	7.3	8	10	11.2	1.2
13...	1345	481	252	5.7	--	30	10.0	1.2
JAN								
10...	1252	459	260	2.4	10	10	10.3	1.3
26...	1115	478	188	5.3	20	3	9.8	1.2
FEB								
07...	1110	478	225	5.5	--	20	9.3	1.2
16...	1219	497	200	6.2	8	20	10.8	1.1
MAR								
07...	1230	466	212	8.1	8	15	10.0	--
21...	1030	457	208	7.8	13	15	8.8	1.1
APR								
04...	1120	456	242	12.5	6	6	8.8	1.2
18...	1120	442	221	9.7	16	15	8.9	1.1
MAY								
02...	1105	--	211	12.4	7	10	8.6	1.0
16...	1115	--	222	12.4	25	5	7.8	1.1
JUN								
08...	1110	353	275	15.5	--	10	9.4	.96
20...	1215	399	240	16.0	--	20	--	1.1
JUL								
13...	1215	387	215	18.8	10	10	8.5	1.1
25...	1225	399	230	18.1	6	5	--	1.1
AUG								
08...	1510	385	255	17.3	--	15	11.8	1.1
22...	1030	421	215	14.0	--	2	10.0	1.1
30...	0830	400	266	12.0	--	1	8.8	.95
30...	1425	410	271	14.8	--	1	9.5	.95
SEP								
07...	1030	421	225	12.5	--	9	8.7	1.0
26...	1015	--	211	10.3	--	6	10.7	1.1

12431000 LITTLE SPOKANE RIVER NEAR MOUTH, NEAR SPOKANE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT								
12...	.19	.03	.00	1	6	26	.0	20
18...	.03	.06	.01	0	8	16	.0	20
NOV								
08...	.06	.03	.02	1	2	62	.0	20
15...	.05	.03	.02	0	2	66	.6	30
DEC								
08...	.15	.03	.02	0	1	78	.1	10
13...	.02	.03	.02	0	1	105	.0	20
JAN								
19...	.08	.03	.02	--	--	--	--	--
26...	.06	.04	.03	0	3	97	.0	30
FEB								
07...	.03	.04	.07	0	2	96	.0	20
14...	.47	.26	.07	0	5	98	.1	20
MAR								
17...	.02	.04	.02	0	1	120	.0	20
21...	.03	.06	.02	--	--	--	.5	--
APR								
06...	.06	.32	.31	0	5	134	.0	20
18...	.03	.03	.02	0	0	70	.3	20
MAY								
02...	.06	.02	.01	0	1	130	.0	20
18...	.04	.03	.01	0	1	160	.2	20
JUN								
08...	.06	.13	.02	0	3	180	2.0	10
20...	.20	.06	.02	0	6	28	.0	20
JUL								
13...	.05	.13	.02	0	3	58	.0	10
25...	.05	.08	.01	0	1	15	.0	10
AUG								
08...	.06	.07	.02	0	1	130	.0	10
22...	.03	.03	.01	0	1	150	.0	10
30...	.06	.02	.01	--	--	--	--	--
30...	.06	.02	.02	--	--	--	--	--
SEP								
07...	.08	.05	.02	0	1	6	.0	10
26...	.07	.12	.03	0	0	98	.0	20

12431900 LITTLE SPOKANE RIVER NEAR MOUTH, NEAR SPOKANE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
AUG											
30...	0830	410	266	7.7	12.0	1	8.8	86	B910	86	140
30...	1005	410	263	7.9	12.5	--	9.1	90	--	--	--
30...	1230	410	278	7.8	13.5	--	9.3	94	--	--	--
30...	1425	410	277	7.9	14.8	1	9.5	99	--	--	--
30...	1600	410	274	7.8	14.9	--	9.6	100	--	--	--
30...	1820	410	277	7.7	15.3	--	9.7	102	--	--	--
30...	2015	410	306	8.1	15.0	0	9.3	96	B300	30	--
30...	2230	410	270	8.1	14.2	--	9.2	94	--	--	--
31...	0015	410	270	8.0	13.6	--	9.0	90	--	--	--
31...	0200	410	270	8.0	13.0	1	9.0	89	--	--	--
31...	0415	410	260	7.7	12.1	--	8.9	87	--	--	--
31...	0600	410	255	7.6	11.6	--	8.7	84	--	--	--

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
AUG										
30...	8	33	14	4.3	2.1	161	0	130	5.1	12
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	161	0	132	3.2	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
AUG										
30...	3.3	.1	14	162	6	.95	.04	.19	.02	.01
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	0	.95	.06	.13	.02	.02
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

B Results based upon colony counts outside the ideal range.

12432500 LONG LAKE AT LONG LAKE, WA

LOCATION.--Lat 47°50'12", long 117°50'20", in NW¼SW¼ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, at left end of spillway at Long Lake Dam on Spokane River, 12 mi (19 km) north of Reardon and at mile 33.9 (54.5 km).

DRAINAGE AREA.--6,020 mi² (15,600 km²), approximately.

PERIOD OF RECORD.--October 1913 to current year. Prior to October 1950 monthend contents only, published in WSP 1316.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder with remote indicator in powerhouse. Datum of gage is at mean sea level (levels by Washington Water Power Co.).

REMARKS.--Reservoir is formed by concrete dam, completed in 1913 and raised in 1950. Capacity, 104,200 acre-ft (128 hm³) between elevations 1,512 ft (460.9 m) and 1,536 ft (468.2 m), normal limits of operation. Contents at elevation 1,512 ft (460.9 m) by capacity table used prior to October 1915, 148,600 acre-ft (183 hm³). Records given herein represent usable contents. Water used for power. About 25,000 acres (100 km²) irrigated above station, largely from wells in the Spokane Valley. Flow regulated by Coeur d'Alene Lake (see sta 12415500) and powerplants along Spokane River.

COOPERATION.--Lake elevations and capacity table furnished by Washington Water Power Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 107,600 acre-ft (133 hm³) Jan. 16, 1974, elevation, 1,536.67 ft (468.377 m); minimum, since filling reservoir in 1920, 5,400 acre-ft (6.66 hm³) Mar. 8, 1966, elevation, 1,513.50 ft (461.315 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 104,150 acre-ft (128 hm³) Oct. 26, elevation, 1,535.99 ft (468.170 m); minimum, 35,666 acre-ft (44.0 hm³) Feb. 4, elevation, 1,521.23 ft (463.671 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1,535.68	102,600	----
Oct. 31	1,535.77	103,050	+450
Nov. 30	1,535.26	100,500	-2,550
Dec. 31	1,535.40	101,200	+700
CAL YR 1976	---	---	-450
Jan. 31	1,524.31	48,864	-52,336
Feb. 28	1,532.07	84,743	+35,879
Mar. 31	1,525.92	55,948	-28,795
Apr. 30	1,529.91	74,377	+18,429
May 31	1,535.64	102,400	+28,023
June 30	1,535.44	101,400	-1,000
July 31	1,535.71	102,750	+1,350
Aug. 31	1,535.52	101,800	-950
Sept. 30	1,535.64	102,400	+600
WTR YR 1977	---	---	-200

SPOKANE RIVER BASIN

12433000 SPOKANE RIVER AT LONG LAKE, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 47°50'12", long 117°50'25", in NW¼SW¼ sec.13, T.27 N., R.39 E., Lincoln County, Hydrologic Unit 17010307, on left bank at Long Lake powerhouse, 1.4 mi (2.3 km) upstream from Chamokane Creek, 12 mi (19 km) north of Reardon, and at mile 33.88 (54.51 km).

DRAINAGE AREA.--6,020 mi² (15,590 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,299.00 ft (395.935 m) above mean sea level.

REMARKS.--Water discharge records good. Flow regulated by Coeur d'Alene Lake (see sta 12415500) and Long Lake (see sta 12432500) for powerplants of Washington Water Power Co. About 25,000 acres (100 km²) irrigated above station, largely from wells in the Spokane Valley.

COOPERATION.--Discharge records furnished by Washington Water Power Co.; three discharge measurements made by Geological Survey.

AVERAGE DISCHARGE.--38 years, 8,044 ft³/s (227.8 m³/s) 5,828,000 acre-ft/yr (7,190 hm³), adjusted for storage in Long Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49,700 ft³/s (1,410 m³/s) Jan. 19, 1974, gage height, 78.40 ft (23.896 m); maximum recorded gage height, 78.66 ft (23.976 m) May 24, 1948; minimum daily discharge, 114 ft³/s (3.23 m³/s) Sept. 2, 1956.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,650 ft³/s (188 m³/s) May 19, gage height, 64.08 ft (19.532 m); minimum daily, 210 ft³/s (5.95 m³/s) Feb. 12, 13, 19-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2910	3360	2170	3060	4900	3860	4260	3340	5860	2590	1560	1600
2	2880	3230	2130	2430	4800	3840	4950	4390	5760	1600	1610	1610
3	3210	2890	2690	3550	4710	3800	3300	5740	5850	1640	1700	1760
4	3100	3200	2800	2830	4520	2750	3100	6150	5840	1570	2070	2120
5	2880	3170	2840	3070	2540	3790	2270	5530	5490	1530	1890	2690
6	2870	3170	2820	3570	3200	3830	3280	4640	5090	1980	1510	2240
7	3040	3430	2820	4080	2830	3620	2920	5060	4500	2210	1570	2230
8	3250	3400	2820	5120	2550	3790	3120	5080	5190	2280	1600	2240
9	2880	3320	2160	5340	2300	3800	4360	5060	5150	1620	1610	2240
10	3070	2900	2160	5160	1730	3830	4010	5460	5140	1460	1600	2230
11	3240	3050	2850	5090	1800	3770	4470	6060	4280	2010	1700	1650
12	2860	2870	2860	4750	210	3770	4440	6260	5040	2240	1600	2230
13	2860	3000	2100	4010	210	3760	4080	6260	5220	2180	1620	2240
14	2840	3310	2100	4060	1580	3770	5030	6250	4550	2200	1520	2230
15	3120	3480	2810	3090	1550	3770	5030	6320	4480	2280	1990	2200
16	3210	4000	2720	2730	1770	3770	5020	5990	4140	2280	800	2200
17	3220	2870	2830	2410	2280	3840	5050	6120	4100	2320	810	2220
18	2870	2900	2810	1340	1630	4090	5020	6200	3800	1590	1620	1740
19	2950	2910	2980	2310	210	4090	5020	6170	3300	1300	1630	2380
20	3130	2900	2780	2800	210	4030	4390	6120	3100	1330	1440	2230
21	3280	2920	2090	3150	210	4070	5000	5860	2540	1310	900	2260
22	3000	3220	2980	4030	2300	4090	4390	5900	2800	1560	1600	2240
23	2850	3630	2900	4070	1320	4060	2680	6120	2950	1280	1590	2230
24	3000	2910	2870	4040	2310	4040	3940	6230	2340	1500	1680	2250
25	3220	2380	2160	4110	1580	4260	5040	6220	2560	1450	1610	2260
26	3110	2420	2620	5060	1580	3950	5060	6260	2590	2090	1640	2230
27	3230	2910	2490	5030	1610	920	5020	6260	2720	2080	1630	2340
28	3330	1990	2800	5050	2780	3290	4860	6240	2700	1910	1440	2330
29	3230	2880	2750	5040	---	4290	4100	6320	2710	1570	1650	2370
30	2890	2140	2760	4830	---	5000	2990	6300	2730	1200	1660	2400
31	3130	---	2760	4980	---	4480	---	6260	---	1470	1680	---
TOTAL	94660	91260	80530	120190	59300	118040	126180	180170	122510	55730	48530	65190
MEAN	3056	3042	2598	3877	2118	3808	4206	5812	4084	1798	1565	2173
MAX	3330	4000	2980	5340	4900	5000	5060	6320	5860	2590	2070	2690
MIN	2840	1990	2080	1340	210	920	2270	3340	2340	1200	800	1600
AC-FT	187800	181000	159700	238400	117600	234100	250300	357400	243000	110500	96260	129300
†	+450	-2,550	+700	-52,336	+35,870	-28,795	+18,429	+28,023	-1,000	+1,350	-950	+600
MEAN‡	3,061	2,998	2,609	3,027	2,764	3,339	4,516	6,268	4,067	1,818	1,550	2,183
AC-FT‡	188,200	178,400	160,400	186,000	153,500	205,300	268,800	385,400	242,000	111,800	95,300	129,900

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CAL YR 1976:  TOTAL    3,076,510   MEAN   8,406   MAX   31,100   MIN  1,990   AC-FT  6,102,000
    DO.....:  MEAN‡        8,406   CFSM‡   1.40   IN†    18.92   AC-FT‡  6,102,000
WTR YR 1977:  TOTAL    1,162,290   MEAN   3,184   MAX    6,320   MIN    210   AC-FT  2,305,000
    DO.....:  MEAN‡        3,184   CFSM‡   0.53   IN‡     7.15   AC-FT‡  2,305,000
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† Change in contents, in acre-feet, in Long Lake

‡ Adjusted for change in contents, in Long Lake.

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued
(National Stream-Quality Accounting Network Station)

WATER-QUALITY RECORDS

LOCATION.--Water Quality monitor 0.6 mi (1.0 km) downstream from discharge station.

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1973 to current year.
WATER TEMPERATURES: July 1959 to September 1962, October 1966 to September 1970, March 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since March 1973.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. In addition to the water-quality monitor record, samples were collected approximately twice a month.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance for half of the water-quality samples listed below furnished by Washington State Department of Ecology.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 235 micromhos Sept. 8, 1973; minimum, 50 micromhos May 19, 1976.
WATER TEMPERATURES: Maximum, 24.5°C Aug. 18, 1959; minimum, 0.0°C Jan. 21, Feb. 26, 1960.

EXTREMES OUTSIDE PERIOD OF DAILY RECORD.--Specific conductance: Maximum, 258 micromhos Oct. 2-3, 1961.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 218 micromhos Jan. 19; minimum recorded, 88 micromhos June 10.
WATER TEMPERATURES: Maximum recorded, 22.0°C Aug. 4; minimum recorded, 3.0°C Jan. 19.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)
OCT										
12...	1115	3800	147	7.4	15.0	2	150	17	--	<1
12...	1230	3800	--	--	15.1	4	--	--	--	--
NOV										
03...	1045	3930	166	7.6	10.9	3	<1	--	<1	--
15...	1230	3890	170	--	--	2	--	--	--	--
30...	0945	2620	195	7.6	7.6	2	6	--	6	--
DEC										
13...	1430	2640	105	--	4.8	10	--	--	--	--
JAN										
07...	0900	5000	216	7.6	3.5	1	3	--	7	--
24...	1200	5100	--	--	3.0	3	--	--	--	--
FEB										
14...	1250	2520	--	--	5.1	7	--	--	--	--
25...	1200	2570	200	7.7	4.8	4	6	--	3	--
MAR										
21...	1105	3970	--	--	6.5	10	--	--	--	--
23...	1130	4050	105	7.4	6.2	4	<1	--	<1	--
APR										
18...	1200	4900	155	--	8.9	8	--	--	--	--
18...	1215	4920	165	8.0	8.7	2	13	--	1	--
MAY										
16...	1200	5700	110	--	12.0	8	--	--	--	--
17...	1100	6000	110	8.1	12.5	1	72	--	1	--
JUN										
14...	1045	5100	117	8.4	16.0	1	1	--	<1	--
20...	1300	3920	--	--	19.5	10	--	--	--	--
JUL										
13...	1100	3910	120	7.6	18.5	1	650	--	1	--
25...	1300	1390	--	--	20.4	10	--	--	--	--
AUG										
12...	1130	2600	179	8.0	20.8	1	--	--	11	--
22...	1115	2670	--	--	20.3	3	--	--	--	--
SEP										
26...	1050	3900	--	--	14.2	2	--	--	--	--
29...	0915	3850	182	7.4	14.2	2	--	--	4	--

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	FECAL STREP-TOCOCCI KF AGAR (COL. PER 100 ML)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)
OCT									
12...	--	77	11	19	7.2	3.7	1.5	80	66
12...	--	--	--	--	--	--	--	--	--
NOV									
03...	<1	80	12	20	7.2	3.8	1.5	82	67
15...	--	--	--	--	--	--	--	--	--
30...	1	80	12	20	7.4	4.3	1.7	84	69
DEC									
13...	--	--	--	--	--	--	--	--	--
JAN									
07...	36	75	0	20	6.2	4.3	1.5	99	81
24...	--	--	--	--	--	--	--	--	--
FEB									
14...	--	--	--	--	--	--	--	--	--
25...	13	89	12	22	8.2	4.4	3.2	94	77
MAR									
21...	--	--	--	--	--	--	--	--	--
23...	--	84	9	21	7.6	4.2	5.3	91	75
APR									
18...	--	--	--	--	--	--	--	--	--
18...	1	73	11	18	6.7	3.5	1.4	75	62
MAY									
16...	--	--	--	--	--	--	--	--	--
17...	2	51	9	13	4.5	2.6	1.1	51	42
JUN									
14...	2	56	15	15	4.6	2.5	1.1	51	42
20...	--	--	--	--	--	--	--	--	--
JUL									
13...	1	60	8	15	5.5	3.0	1.6	63	52
25...	--	--	--	--	--	--	--	--	--
AUG									
12...	7	76	0	21	5.7	3.8	1.4	92	75
22...	--	--	--	--	--	--	--	--	--
SEP									
26...	--	--	--	--	--	--	--	--	--
29...	52	92	15	23	8.5	4.1	1.9	94	77

DATE	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)
OCT									
12...	5.1	9.1	2.7	.1	8.5	90	92	3	.47
12...	--	--	--	--	--	--	--	--	.52
NOV									
03...	3.3	11	2.9	.1	7.7	101	95	13	.48
15...	--	--	--	--	--	--	--	--	.48
30...	3.4	12	2.3	.1	7.6	94	97	8	--
DEC									
13...	--	--	--	--	--	--	--	--	.54
JAN									
07...	4.0	13	2.7	.1	11	117	108	3	.62
24...	--	--	--	--	--	--	--	--	.62
FEB									
14...	--	--	--	--	--	--	--	--	.66
25...	3.0	13	10	.1	11	110	118	0	.62
MAR									
21...	--	--	--	--	--	--	--	--	.60
23...	5.8	13	6.6	.1	9.3	114	112	4	.58
APR									
18...	--	--	--	--	--	--	--	--	.40
18...	.2	9.7	3.5	.1	7.4	102	87	7	.40
MAY									
16...	--	--	--	--	--	--	--	--	.16
17...	.6	14	1.7	.1	6.1	60	68	1	.13
JUN									
14...	.3	13	1.5	.1	6.7	68	70	1	.08
20...	--	--	--	--	--	--	--	--	.94
JUL									
13...	2.5	11	2.4	.1	6.5	82	76	4	.42
25...	--	--	--	--	--	--	--	--	.50
AUG									
12...	1.5	10	3.3	.1	5.9	92	97	3	.48
22...	--	--	--	--	--	--	--	--	.32
SEP									
26...	--	--	--	--	--	--	--	--	.36
29...	6.0	9.1	3.6	.1	6.9	104	104	11	.32

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT									
12...	.02	.60	.22	.60	.10	.07	3	31	98
12...	.02	--	.27	.76	.10	.06	--	--	--
NOV									
03...	.01	.69	.26	.51	.07	.05	2	21	72
15...	.02	--	.28	.68	.07	.05	--	--	--
30...	--	--	--	--	--	--	6	28	20
DEC									
13...	.02	--	.28	.62	.07	.06	--	--	--
JAN									
07...	.01	.63	.26	.61	.09	.08	2	27	--
24...	.01	--	.26	.66	.12	.07	--	--	--
FEB									
14...	.01	--	.32	.52	.10	.07	--	--	--
25...	.01	.63	.31	.56	.13	.12	2	14	98
MAR									
21...	.01	--	.19	.37	.10	.06	--	--	--
23...	.01	.59	.20	.50	.10	.06	6	66	73
APR									
18...	.02	--	.15	.66	.09	.02	--	--	--
19...	.01	.41	.13	.45	.07	.02	5	66	96
MAY									
16...	.01	--	.15	.41	.05	.01	--	--	--
17...	.01	.16	.14	.60	.05	.01	6	65	93
JUN									
14...	.01	.09	.12	.66	.05	.02	2	28	98
20...	.01	--	.20	.60	.05	.03	--	--	--
JUL									
13...	.00	.42	.10	.35	.10	.05	2	21	97
25...	.00	--	.06	.29	.08	.03	--	--	--
AUG									
12...	.06	.56	.07	.35	.08	.05	3	21	86
22...	.02	--	.25	.55	.09	.05	--	--	--
SEP									
26...	.03	--	.31	.67	.11	.09	--	--	--
29...	.02	.36	.20	.67	.14	.11	5	52	86

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT												
12...	1115	--	2	<10	0	0	0	<50	0	<10	1	120
JAN												
07...	0900	2	2	<10	1	0	0	<50	0	<10	3	120
APR												
19...	1215	1	2	<10	1	<10	0	<50	0	10	1	260
JUL												
13...	1100	1	1	<10	1	0	0	<50	0	30	1	160

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT												
12...	10	<100	0	400	300	.0	.0	0	0	40	20	1.3
JAN												
07...	30	<100	2	50	30	.0	.0	0	0	60	60	4.0
APR												
19...	30	<100	0	40	10	.0	.2	0	0	140	70	2.7
JUL												
13...	40	<100	4	20	4	2.0	.0	0	0	60	50	1.6

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	TOTAL ALDRIN (UG/L)	TOTAL ATRA-ZINE (UG/L)	TOTAL CHLOR-DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI-AZINON (UG/L)
NOV								
03...	1045	ND	ND	ND	ND	ND	ND	ND
FEB								
25...	1200	ND	ND	ND	ND	ND	ND	ND
MAY								
17...	1100	ND	--	ND	ND	ND	ND	ND
AUG								
12...	1130	ND	ND	ND	ND	ND	ND	ND

DATE	TOTAL DI-ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)	TOTAL HEPTA-CHLOR (UG/L)	TOTAL HEPTA-CHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALA-THION (UG/L)	TOTAL METH-OXY-CHLOR (UG/L)	TOTAL METHYL PARA-THION (UG/L)
NOV									
03...	ND	ND	ND	ND	ND	ND	ND	ND	ND
FEB									
25...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY									
17...	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG									
12...	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	TOTAL METHYL TRI-THION (UG/L)	TOTAL PARA-THION (UG/L)	SIMA-ZINE TOTAL((UG/L)	TOTAL TOX-APHENE (UG/L)	TOTAL TRI-THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
NOV								
03...	ND	ND	ND	ND	ND	ND	ND	ND
FEB								
25...	ND	ND	ND	ND	ND	ND	ND	ND
MAY								
17...	ND	ND	--	ND	ND	ND	ND	ND
AUG								
12...	ND	ND	ND	ND	ND	ND	ND	ND

ND None detected.

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

	OCT 12,76	NOV 3,76	NOV 30,76	JAN 7,77	FEB 25,77
DATE	OCT 12,76	NOV 3,76	NOV 30,76	JAN 7,77	FEB 25,77
TIME	1115	1045	0945	0900	1200
TOTAL CELLS/ML	2200	2900	86	370	800
DIVERSITY: DIVISION	1.5	1.6	1.0	1.6	0.3
.CLASS	1.5	1.6	1.0	1.6	0.3
..ORDER	2.2	1.7	1.4	2.1	1.2
...FAMILY	2.6	1.8	1.7	2.3	1.5
....GENUS	2.9	1.8	1.7	2.9	2.1

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	280	13	390	13	49#	57	*	0	--	-
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
....GOLENKINIA	--	-	--	-	--	-	--	-	*	0
....MICRACTINIUM	--	-	--	-	--	-	--	-	*	0
...OOCYSTACEAE										
....ANKISTRODESMUS	*	0	--	-	--	-	29	8	6	1
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	*	0	--	-	--	-	--	-	--	-
....OOCYSTIS	32	1	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	--	-	27	7	*	0
..TETRASPORALES										
...PALMELLACEAE										
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	--	-
..ULOTRICHALES										
...ULOTHRICHACEAE										
....ULOTHRIX	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	--	-	--	-	11	3	6	1
...VOLVOCACEAE										
....EUDORINA	95	4	--	-	--	-	--	-	--	-
....PANDORINA	--	-	--	-	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARIUM	--	-	--	-	--	-	--	-	--	-
....STAURASTRUM	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	--	-	--	-	3	1	17	2
....MELOSIRA	520#	23	390	13	18#	21	86#	23	260#	32
...RHIZOSOLENIACEAE										
....RHIZOSOLENIA	--	-	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	--	-	--	-	*	0
....COCCONEIS	*	0	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	--	-	--	-	46	12	300#	38
....FRAGILARIA	430#	19	520#	18	3	4	3	1	140#	18
....HANNAEA	*	0	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	*	0	--	-	13	4	--	-
...NAVICULACEAE										
....NAVICULA	*	0	--	-	--	-	*	0	*	0
....PINNULARIA	--	-	66	2	--	-	--	-	--	-
...NITZSCHIACEAE										
....HANTZSCHIA	--	-	--	-	--	-	--	-	*	0
....NITZSCHIA	--	-	--	-	12	14	3	1	48	6
...TABELLARIACEAE										
....TABELLARIA	--	-	--	-	3	4	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

SAMPLING METHOD : EDI

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	OCT 12,76 1115		NOV 3,76 1045		NOV 30,76 0945		JAN 7,77 0900		FEB 25,77 1200	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	63	3	--	-	--	-	--	-	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	3900#	17	16000#	53	--	-	--	-	--	-
....ANABAENOPSIS	--	-	--	-	--	-	800#	21	--	-
....APHANIZOMENON	310	14	--	-	--	-	720#	19	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	110	5	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE										
....CRYPTOMONAS	--	-	--	-	--	-	--	-	--	-
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	--	-	3	1	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-	6	1
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	--	-	--	-	*	0	--	-
...PERIDINIACEAE										
....PERIDINIUM	--	-	--	-	--	-	--	-	8	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

SAMPLING METHOD: EDI

DATE TIME	MAY 17,77 1100	JUN 14,77 1045	AUG 12,77 1130	SEP 20,77 0915
TOTAL CELLS/ML	20000	7700	9300	4400
DIVERSITY: DIVISION	1.1	1.5	1.6	1.3
.CLASS	1.1	1.5	1.6	1.3
..ORDER	1.5	2.1	2.5	1.7
...FAMILY	2.6	2.0	3.1	1.8
....GENUS	3.2	2.0	3.3	1.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	*	0	160	2	*	0
...COELASTRACEAE								
....COELASTRUM	--	-	150	2	710	8	210	5
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	570	6	--	-
...MICRACTINIACEAE								
....GOLENKINIA	--	-	*	0	--	-	--	-
....MICRACTINIUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	2500	13	580	8	--	-	--	-
....DICTYOSPHAERIUM	2700	14	--	-	1800#	19	130	3
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	610	7	63	1
....TETRAEDRON	--	-	*	0	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	460	2	--	-	--	-	--	-
....SCENEDESMUS	1600	8	260	3	--	-	--	-
..TETRASPORALES								
...PALMELLACEAE								
....SPHAEROCYSTIS	--	-	--	-	290	3	--	-
..ULOTRICHALES								
...ULOTRICHACEAE								
....ULOTHRIX	--	-	73	1	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	*	0	160	2	42	1
...VOLVOCACEAE								
....EUDORINA	--	-	--	-	--	-	--	-
....PANDORINA	--	-	290	4	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....COSMARIUM	--	-	--	-	*	0	--	-
....STAURASTRUM	--	-	--	-	130	1	--	-

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	MAY 17,77 1100		JUN 14,77 1045		AUG 12,77 1130		SEP 29,77 0915	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	2100	10	*	0	--	-	--	-
....MELOSIRA	--	-	970	13	1600#	17	95	2
...RHIZOSOLENIACEAE								
....RHIZOSOLENIA	--	-	*	0	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	4000#	20	190	2	--	-	--	-
....FRAGILARIA	570	3	330	4	820	9	2700#	62
....HANNAEA	--	-	--	-	--	-	--	-
....SYNEDRA	800	4	*	0	*	0	--	-
...NAVICULACEAE								
....NAVICULA	1500	8	--	-	--	-	--	-
....PINNULARIA	--	-	--	-	--	-	--	-
...NITZSCHIACEAE								
....HANTZSCHIA	--	-	--	-	--	-	--	-
....NITZSCHIA	2800	14	560	7	--	-	--	-
...TABELLARIACEAE								
....TABELLARIA	--	-	220	3	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	200	3	1700#	18	320	7
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	550	6	820#	19
....ANABAENOPSIS	--	-	--	-	--	-	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	3700#	48	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	56	1	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	680	3	--	-	--	-	--	-
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	130	1	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-
...PERIDINIACEAE								
....PERIDINIUM	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: EDI

SPOKANE RIVER BASIN

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	167	164	166	195	194	195	210	209	210
2	---	---	---	166	165	165	195	194	195	212	209	211
3	---	---	---	172	166	168	197	195	195	213	210	212
4	---	---	---	175	166	169	196	195	195	214	213	214
5	---	---	---	176	166	168	197	195	196	216	214	215
6	---	---	---	171	164	167	197	196	196	215	213	214
7	---	---	---	169	165	166	198	196	197	217	213	213
8	---	---	---	170	167	168	199	197	198	214	212	213
9	---	---	---	171	168	170	199	198	198	213	212	213
10	---	---	---	171	169	170	200	198	199	213	212	213
11	---	---	---	171	170	171	201	199	200	213	213	213
12	150	148	149	172	171	172	202	199	200	215	213	214
13	153	146	149	173	172	172	202	198	201	216	214	215
14	150	145	148	175	173	174	204	201	202	217	214	215
15	151	147	149	176	175	175	204	203	203	217	215	216
16	151	148	150	180	176	178	206	203	204	217	215	216
17	151	149	151	181	179	180	206	203	204	217	215	216
18	154	151	152	181	180	180	208	203	205	217	215	216
19	154	152	153	182	181	181	206	203	205	218	216	216
20	155	153	154	184	182	183	207	205	206	216	215	215
21	155	153	154	186	184	185	207	205	206	214	214	214
22	155	151	153	187	186	186	208	206	207	214	213	214
23	156	152	154	188	186	187	208	207	207	214	213	213
24	157	156	157	189	188	188	207	206	207	214	212	213
25	160	158	159	190	189	190	210	207	208	212	211	212
26	160	159	159	191	189	190	212	209	210	214	212	213
27	163	161	161	191	190	191	213	209	210	213	212	213
28	162	161	161	193	192	192	214	208	211	215	212	213
29	162	161	162	196	194	194	211	209	210	215	212	213
30	164	162	163	196	194	195	212	209	211	214	212	213
31	165	163	164	---	---	---	211	210	210	214	212	212
MONTH	165	145	155	196	164	178	214	194	203	218	209	214

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	212	211	212	205	202	203	---	---	---	144	140	142
2	213	211	212	206	201	203	---	---	---	140	136	138
3	211	211	211	204	202	202	---	---	---	137	134	136
4	211	210	211	206	201	202	---	---	---	136	130	133
5	211	210	210	203	200	201	---	---	---	130	127	128
6	210	209	209	201	201	200	---	---	---	127	124	125
7	210	208	209	202	199	200	---	---	---	127	126	127
8	209	208	208	201	199	200	---	---	---	127	125	126
9	209	208	208	200	199	199	---	---	---	129	126	127
10	212	209	210	199	198	198	---	---	---	131	128	129
11	212	209	210	198	197	197	---	---	---	130	127	128
12	213	210	212	198	196	197	---	---	---	129	123	125
13	212	210	211	197	196	196	---	---	---	122	118	120
14	210	206	209	196	193	194	---	---	---	122	119	121
15	212	208	209	196	191	194	---	---	---	120	119	120
16	214	209	210	193	190	183	---	---	---	120	117	119
17	211	208	209	190	189	183	---	---	---	120	118	119
18	211	207	209	190	189	183	---	---	---	117	116	116
19	212	208	211	189	188	185	165	155	161	114	112	113
20	211	208	210	187	185	187	169	166	166	114	112	114
21	211	208	210	186	184	185	168	166	167	114	111	113
22	212	207	209	187	183	185	167	160	164	114	110	112
23	213	206	208	185	183	185	167	160	164	114	113	113
24	211	206	208	185	181	---	163	158	161	114	111	113
25	211	206	209	186	182	---	158	156	157	114	111	112
26	210	205	207	184	182	---	154	150	152	114	112	113
27	208	205	206	189	181	---	149	146	147	114	112	113
28	209	204	206	---	---	---	146	143	144	114	112	113
29	---	---	---	---	---	---	146	143	144	112	111	112
30	---	---	---	---	---	---	147	138	145	109	108	109
31	---	---	---	---	---	---	---	---	---	111	106	109
MONTH	214	204	209	205	181	194	169	138	156	144	106	121

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	108	105	107	152	148	151	206	198	201	---	---	---
2	107	102	105	155	152	154	204	198	201	---	---	---
3	107	104	106	160	156	158	202	198	200	190	173	180
4	106	98	100	164	161	163	204	198	201	193	178	188
5	100	95	95	165	164	165	202	198	200	187	177	181
6	99	95	97	166	161	163	200	195	198	188	171	180
7	98	93	95	163	161	162	198	193	196	196	172	180
8	97	94	95	164	161	163	195	189	193	193	180	184
9	92	90	91	162	156	160	193	186	190	193	175	184
10	94	88	91	155	141	150	189	183	186	195	178	187
11	101	91	95	141	137	140	186	179	182	198	189	195
12	116	99	108	136	127	130	---	---	---	202	191	197
13	116	113	114	133	126	129	---	---	---	198	194	197
14	117	114	115	144	133	140	---	---	---	201	191	196
15	114	112	114	159	146	152	---	---	---	200	191	194
16	113	103	108	168	160	164	---	---	---	202	197	199
17	120	114	118	172	168	170	---	---	---	202	190	198
18	120	118	119	173	170	172	---	---	---	194	188	191
19	131	119	126	174	171	172	---	---	---	195	190	192
20	135	132	134	173	166	170	---	---	---	194	179	188
21	160	135	139	167	158	163	---	---	---	184	176	179
22	146	139	144	161	155	158	---	---	---	184	172	178
23	155	146	152	172	161	166	---	---	---	183	175	178
24	157	154	156	179	172	175	---	---	---	183	175	180
25	159	156	157	186	181	183	---	---	---	180	175	178
26	162	157	158	189	184	186	---	---	---	181	167	176
27	159	156	159	195	189	192	---	---	---	174	167	170
28	156	145	151	200	195	197	---	---	---	183	168	176
29	147	145	146	200	198	199	---	---	---	184	165	175
30	149	145	148	204	200	201	---	---	---	172	157	168
31	---	---	---	204	200	202	---	---	---	---	---	---
MONTH	160	88	122	204	126	166	206	179	195	202	157	185
YEAR	210	88	175									

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	12.5	11.0	11.5	7.5	7.0	7.5	4.0	3.5	4.0
2	---	---	---	11.5	11.0	11.0	7.5	7.0	7.0	4.0	3.5	3.5
3	---	---	---	11.0	10.5	11.0	7.0	7.0	7.0	4.0	3.5	4.0
4	---	---	---	11.0	10.5	10.5	7.0	7.0	7.0	4.0	3.5	4.0
5	---	---	---	11.0	10.5	10.5	7.0	7.0	7.0	4.0	3.5	3.5
6	---	---	---	10.5	10.5	10.5	7.0	6.5	6.5	3.5	3.5	3.5
7	---	---	---	10.5	10.5	10.5	6.5	6.5	6.5	3.5	3.5	3.5
8	---	---	---	10.5	10.5	10.5	6.5	6.5	6.5	3.5	3.5	3.5
9	---	---	---	10.5	10.0	10.5	6.5	6.0	6.5	3.5	3.5	3.5
10	---	---	---	10.5	10.0	10.0	6.0	6.0	6.0	3.5	3.5	3.5
11	---	---	---	10.0	10.0	10.0	6.0	6.0	6.0	3.5	3.5	3.5
12	16.0	15.5	15.5	10.0	9.5	10.0	6.0	5.5	6.0	3.5	3.5	3.5
13	15.5	15.0	15.5	10.0	9.5	9.5	5.5	5.5	5.5	3.5	3.5	3.5
14	15.5	15.0	15.0	9.5	9.5	9.5	5.5	5.5	5.5	3.5	3.5	3.5
15	15.0	14.5	15.0	9.5	9.5	9.5	5.5	5.5	5.5	3.5	3.5	3.5
16	15.0	14.5	14.5	9.5	9.5	9.5	5.5	5.5	5.5	3.5	3.5	3.5
17	14.5	14.5	14.5	9.5	9.5	9.5	5.5	5.0	5.5	3.5	3.5	3.5
18	14.5	14.0	14.5	9.5	9.5	9.5	5.5	5.0	5.0	3.5	3.5	3.5
19	14.5	14.0	14.0	9.5	9.5	9.5	5.0	5.0	5.0	3.5	3.0	3.5
20	14.5	14.0	14.0	9.5	9.0	9.5	5.0	5.0	5.0	3.5	3.5	3.5
21	14.0	13.5	14.0	9.0	9.0	9.0	5.0	5.0	5.0	3.5	3.5	3.5
22	14.0	13.5	13.5	9.0	8.5	9.0	5.0	4.5	5.0	4.0	3.5	3.5
23	13.5	13.5	13.5	8.5	8.5	8.5	4.5	4.5	4.5	3.5	3.5	3.5
24	13.5	13.0	13.0	8.5	8.5	8.5	4.5	4.5	4.5	4.0	3.5	3.5
25	13.5	13.0	13.0	8.5	8.0	8.5	4.5	4.5	4.5	3.5	3.5	3.5
26	13.0	12.5	13.0	8.5	8.0	8.0	4.5	4.5	4.5	3.5	3.5	3.5
27	13.0	12.5	12.5	8.0	8.0	8.0	4.5	4.0	4.5	3.5	3.5	3.5
28	12.5	12.0	12.5	8.0	8.0	8.0	4.5	4.0	4.5	3.5	3.5	3.5
29	12.5	12.0	12.0	8.0	7.5	8.0	4.5	4.0	4.0	3.5	3.5	3.5
30	12.0	12.0	12.0	7.5	7.5	7.5	4.0	4.0	4.0	4.0	3.5	3.5
31	12.0	11.5	12.0	---	---	---	4.0	4.0	4.0	4.0	3.5	3.5
MONTH	16.0	11.5	13.5	12.5	7.5	9.5	7.5	4.0	5.5	4.0	3.0	3.5

12433000 SPOKANE RIVER AT LONG LAKE, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.5	3.5	3.5	5.0	4.5	5.0	---	---	---	12.5	10.5	11.5
2	4.0	3.5	4.0	5.0	4.5	5.0	---	---	---	14.0	11.0	12.5
3	4.5	4.0	4.0	5.0	5.0	5.0	---	---	---	11.5	10.5	10.5
4	4.5	4.0	4.0	5.5	4.5	5.0	---	---	---	11.0	10.5	11.0
5	4.0	4.0	4.0	5.5	5.0	5.0	---	---	---	12.0	10.0	11.0
6	4.5	4.0	4.0	5.5	5.0	5.5	---	---	---	12.0	11.5	11.5
7	4.5	4.0	4.5	6.0	5.5	5.5	---	---	---	13.0	12.0	12.5
8	4.5	4.0	4.0	5.5	5.5	5.5	---	---	---	13.0	12.0	12.0
9	4.5	4.5	4.5	5.5	5.5	5.5	---	---	---	13.0	12.0	12.0
10	4.5	4.5	4.5	5.5	5.5	5.5	---	---	---	13.0	12.0	12.5
11	4.5	4.0	4.5	5.5	5.0	5.5	---	---	---	13.0	11.5	12.0
12	5.0	4.5	4.5	5.5	5.5	5.5	---	---	---	12.0	11.0	11.5
13	5.0	4.5	4.5	6.0	5.5	6.0	---	---	---	13.0	12.0	12.5
14	4.5	4.5	4.5	6.0	5.5	5.5	---	---	---	12.5	11.5	12.0
15	5.0	4.0	4.5	6.0	5.5	6.0	---	---	---	12.5	11.5	12.0
16	5.0	4.5	4.5	6.5	6.0	6.0	---	---	---	12.5	12.0	12.5
17	5.0	4.0	4.5	6.0	6.0	6.0	---	---	---	12.5	12.5	12.5
18	5.0	4.5	4.5	6.0	5.5	6.0	9.5	9.0	9.0	13.0	12.5	13.0
19	5.0	4.0	4.5	6.0	5.5	6.0	9.5	9.0	9.0	13.0	12.5	12.5
20	5.0	4.5	5.0	6.0	5.5	6.0	9.5	9.0	9.5	13.0	12.5	12.5
21	5.0	5.0	5.0	6.0	6.0	6.0	10.0	9.0	9.5	13.0	12.0	12.5
22	5.0	4.5	4.5	6.5	6.0	6.5	10.5	9.5	10.0	13.5	13.0	13.0
23	5.0	4.5	4.5	6.5	6.0	6.0	11.0	10.0	10.5	13.5	13.0	13.0
24	5.0	4.5	4.5	6.5	6.0	6.0	11.0	9.5	10.5	13.0	12.5	12.5
25	5.0	4.5	4.5	6.5	6.0	6.0	11.0	10.0	10.5	13.0	12.5	13.0
26	5.0	4.5	4.5	6.0	6.0	6.0	11.0	9.5	10.0	13.5	13.0	13.5
27	5.0	4.5	4.5	6.5	6.0	6.5	10.0	9.0	9.5	13.5	12.5	13.0
28	4.5	4.5	4.5	---	---	---	11.0	10.0	10.5	13.5	12.5	13.0
29	---	---	---	---	---	---	11.0	10.5	10.5	13.5	13.0	13.0
30	---	---	---	---	---	---	11.0	10.5	10.5	14.0	12.5	13.5
31	---	---	---	---	---	---	---	---	---	14.0	13.5	13.5
MONTH	5.0	3.5	4.5	6.5	4.5	5.5	11.0	9.0	10.0	14.0	10.0	12.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	13.0	13.5	20.0	18.5	19.0	20.5	19.0	20.0	---	---	---
2	13.5	13.0	13.5	19.0	17.5	18.5	20.5	19.0	20.0	---	---	---
3	14.0	13.5	13.5	19.5	18.5	19.0	20.5	19.5	20.0	17.0	16.5	16.5
4	14.0	14.0	14.0	19.5	18.5	19.0	22.0	20.0	21.5	17.0	---	---
5	15.0	14.0	14.5	19.5	18.5	19.0	21.5	21.0	21.5	17.0	16.0	16.5
6	15.0	14.5	14.5	19.0	18.5	19.0	21.0	20.0	21.0	16.5	14.5	15.5
7	15.5	14.5	15.0	19.5	18.5	19.0	21.0	19.5	21.0	16.5	13.5	15.0
8	15.5	14.0	15.0	19.5	19.0	19.0	21.0	20.0	20.5	16.0	14.5	15.5
9	15.5	13.5	14.5	20.5	19.0	19.5	20.5	19.5	20.0	16.0	14.5	15.5
10	15.5	15.0	15.5	19.5	18.5	19.0	21.5	19.5	20.5	16.5	15.0	16.0
11	17.0	15.5	16.0	19.5	18.5	19.0	21.0	20.0	21.0	17.0	15.5	16.0
12	16.5	15.5	16.0	19.0	18.5	18.5	---	---	---	17.0	15.5	16.0
13	16.0	15.5	15.5	19.0	18.0	18.5	---	---	---	17.0	15.5	16.5
14	16.5	15.5	16.0	19.5	18.0	19.0	---	---	---	17.5	16.0	16.5
15	16.5	15.5	16.0	19.5	18.5	19.0	---	---	---	16.5	15.5	16.0
16	17.0	16.0	16.5	19.5	18.0	18.5	---	---	---	16.0	15.5	16.0
17	18.0	16.5	17.0	18.5	18.0	18.5	---	---	---	16.5	16.0	16.5
18	18.0	17.0	17.5	19.0	18.0	18.5	---	---	---	16.5	16.0	16.0
19	19.0	17.5	18.0	20.0	18.5	19.0	---	---	---	16.5	15.5	16.5
20	19.0	17.5	18.0	20.0	19.0	19.5	---	---	---	16.0	14.0	15.5
21	18.5	17.0	17.5	20.0	19.0	19.5	---	---	---	14.5	13.5	14.0
22	18.0	17.0	17.5	20.0	19.0	19.5	---	---	---	15.0	13.0	14.0
23	18.5	17.0	17.5	20.0	18.5	19.5	---	---	---	15.0	13.0	14.0
24	19.0	17.5	18.0	21.0	19.0	19.5	---	---	---	15.5	14.5	15.0
25	18.5	17.5	18.0	21.0	20.0	20.0	---	---	---	15.0	14.0	14.5
26	19.0	17.5	18.0	20.5	20.0	20.0	---	---	---	15.0	12.5	14.0
27	18.5	17.0	17.5	20.5	19.5	20.0	---	---	---	14.0	12.5	13.5
28	19.0	17.5	18.0	21.0	19.5	20.0	---	---	---	14.5	13.5	14.0
29	18.5	17.0	17.5	19.5	18.0	19.0	---	---	---	14.5	13.5	14.0
30	19.5	17.5	18.5	20.0	18.5	19.0	---	---	---	14.5	13.5	14.0
31	---	---	---	20.5	19.0	20.0	---	---	---	---	---	---
MONTH	19.5	13.0	16.5	21.0	17.5	19.0	22.0	19.0	20.5	17.5	12.5	15.5
YEAR	22.0	3.0	11.0									

12433100 CHAMOKANE CREEK NEAR SPRINGDALE, WA

LOCATION.--Lat 47°59'41", long 117°43'31", in SE¼SW¼ sec.23, T.29 N., R.40 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank downstream wingwall of county road bridge, 4.3 mi (6.9 km) south of Springdale.

DRAINAGE AREA.--99.9 mi² (258.7 km²).

PERIOD OF RECORD.--June 1973 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,870 ft (570 m), from topographic map.

REMARKS.--Records good except those for October, December, January and February which are fair. Some diversions for irrigation and domestic use.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,950 ft³/s (55.2 m³/s) about Jan. 16, 1974, gage height, 9.10 ft (2.774 m), from high-water mark in well, from rating curve extended above 240 ft³/s (6.80 m³/s); no flow Aug. 2-6, 9-23, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 25 ft³/s (0.71 m³/s) Mar. 9; no flow Aug. 2-6, 9-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	4.4	4.2	4.4	4.2	7.0	7.7	2.6	2.5	.83	.05	.83
2	3.0	4.7	4.2	4.2	4.2	6.7	7.7	3.4	2.5	.78	.00	.78
3	3.2	4.4	4.4	4.2	4.2	6.7	7.4	4.5	2.3	.78	.00	.87
4	3.2	4.0	4.7	4.0	4.4	6.7	7.7	5.7	2.9	.73	.00	1.0
5	3.2	4.0	4.4	4.0	4.4	6.7	8.2	5.3	3.6	.78	.00	1.0
6	3.2	3.7	4.2	3.7	4.4	6.7	8.2	4.3	3.8	.78	.00	.83
7	3.2	4.0	4.2	3.5	4.4	7.5	8.9	3.8	2.9	.65	.45	.83
8	3.5	4.0	4.2	3.5	4.4	15	8.2	3.6	2.2	.78	.29	.83
9	3.5	4.2	4.2	3.7	4.7	25	8.2	3.1	1.6	.73	.00	.78
10	3.2	4.0	4.2	3.7	5.0	20	7.7	3.4	1.5	.65	.00	.78
11	3.5	4.0	4.2	3.7	5.0	12	6.8	3.8	1.3	.69	.00	.78
12	3.2	3.7	4.7	3.7	5.0	11	6.2	4.1	1.7	.69	.00	.73
13	3.2	4.0	4.6	4.0	6.0	9.5	6.2	3.9	1.8	.78	.00	.69
14	3.2	4.0	4.4	4.0	6.0	9.2	6.4	2.9	2.0	.78	.00	.65
15	3.2	3.7	4.4	4.2	6.0	8.9	5.9	2.5	1.8	.69	.00	.69
16	3.2	4.2	4.4	4.2	7.0	7.7	5.5	2.4	2.0	.53	.00	.87
17	3.2	4.7	4.4	4.2	7.0	7.4	5.1	2.2	1.7	.41	.00	.97
18	3.2	4.7	4.6	4.4	8.0	7.2	4.9	3.8	1.3	.49	.00	.97
19	3.2	4.4	4.4	4.2	8.0	7.4	4.7	6.7	1.2	.45	.00	1.0
20	3.7	4.0	4.2	4.2	9.0	6.7	4.7	5.3	1.2	.49	.00	1.1
21	4.0	4.0	4.2	4.2	10	6.9	4.3	4.1	1.1	.69	.00	1.0
22	3.7	4.0	4.2	4.2	11	6.9	4.1	3.4	1.1	.53	.00	1.0
23	3.7	4.2	4.4	4.4	11	9.5	4.1	3.3	1.0	.37	.00	1.0
24	3.7	4.2	4.7	4.4	10	16	4.1	3.6	.97	.25	.57	1.2
25	3.7	4.4	4.4	4.2	8.0	13	3.6	4.3	.92	.02	.83	1.5
26	4.7	4.0	4.4	4.2	6.0	12	3.3	3.9	.87	.87	.92	1.3
27	4.4	4.0	4.4	4.2	6.0	9.8	3.4	3.3	.87	.69	.97	1.3
28	4.0	4.0	4.4	4.2	7.0	8.0	3.4	3.1	.83	.49	.92	1.3
29	3.7	4.2	4.2	4.2	---	8.5	3.4	3.1	.87	.41	.97	1.7
30	3.7	4.0	4.2	4.2	---	8.0	3.0	3.1	.83	.29	.83	2.0
31	4.2	---	4.4	4.2	---	8.2	---	2.9	---	.13	.97	---
TOTAL	108.7	123.8	135.1	126.3	180.3	301.8	173.0	115.4	51.16	18.23	7.77	30.28
MEAN	3.51	4.13	4.36	4.07	6.44	9.74	5.77	3.72	1.71	.59	.25	1.01
MAX	4.7	4.7	4.7	4.4	11	25	8.9	6.7	3.8	.87	.97	2.0
MIN	3.0	3.7	4.2	3.5	4.2	6.7	3.0	2.2	.83	.02	.00	.65
CFSM	.04	.04	.04	.04	.06	.10	.06	.04	.02	.006	.003	.01
IN.	.04	.05	.05	.05	.07	.11	.06	.04	.02	.01	.00	.01
AC-FT	216	246	268	251	358	599	343	229	101	36	15	60

CAL YR 1976 TOTAL 10936.50 MEAN 29.9 MAX 348 MIN 1.3 CFSM .30 IN 4.07 AC-FT 21690
WTR YR 1977 TOTAL 1371.04 MEAN 3.76 MAX 25 MIN .00 CFSM .04 IN .51 AC-FT 2720

12433200 CHAMOKANE CREEK BELOW FALLS, NEAR LONG LAKE, WA

LOCATION.--Lat 47°51'42", long 117°51'28", in SE¼SW¼ sec.2, T.27 N., R.39 E., Stevens County, Hydrologic Unit 17010307, Spokane Indian Reservation, on right bank 800 ft (244 m) downstream from Chamokane Falls, 1.4 mi (2.3 km) upstream from mouth, and 1.8 mi (2.9 km) north of town of Long Lake.

DRAINAGE AREA.--179 mi² (464 km²).

PERIOD OF RECORD.--February 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,418.5 ft (432.36 m) above mean sea level.

REMARKS.--Records good. No known regulation. Diversions upstream for irrigation, domestic use, and fish hatchery.

AVERAGE DISCHARGE.--6 years, 70.6 ft³/s (21.999 m³/s), 5.36 in/yr (136 mm/yr), 51,150 acre-ft/yr (63.1 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,200 ft³/s (62.3 m³/s) Apr. 25, 1975, gage height, 5.06 ft (1.542 m), from rating curve extended above 500 ft³/s (14.2 m³/s) on basis of slope-area measurement of peak flow; minimum, 16 ft³/s (0.45 m³/s) July 10, 1973, gage height, 0.87 ft (0.265 m).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.50 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Nov. 21	1330	*44	1.25	1.15	0.351
Jan. 8	1930	(a)		*1.69	0.515

a Backwater from ice.

Minimum discharge, 17 ft³/s (0.48 m³/s) Aug. 2, 3, 5; minimum gage height, 0.93 ft (0.284 m) June 21-23, 25-27, Aug. 2, 3, 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	32	29	30	29	29	30	26	25	21	19	22
2	30	30	30	29	29	28	30	27	25	22	19	22
3	29	30	30	29	29	28	30	28	25	23	18	22
4	30	30	32	28	29	28	32	26	25	22	19	24
5	30	30	33	27	29	28	32	25	24	23	19	23
6	30	32	32	27	29	28	32	25	23	22	20	22
7	30	30	30	26	29	29	32	25	23	22	21	22
8	31	32	30	25	29	32	32	25	24	22	20	22
9	31	32	30	26	29	32	32	25	23	22	20	21
10	30	32	30	26	32	35	32	26	23	22	20	21
11	31	30	30	27	33	32	30	26	23	22	20	21
12	30	30	30	27	33	30	29	25	23	21	20	21
13	30	30	30	28	32	30	29	25	23	21	20	21
14	30	30	30	28	30	29	29	24	22	21	21	21
15	30	30	30	29	30	29	28	25	21	20	20	20
16	30	30	30	29	30	29	28	25	21	19	19	21
17	30	32	30	29	30	28	28	25	21	19	19	22
18	30	30	33	30	29	28	28	27	21	19	19	22
19	32	30	29	29	29	28	28	26	21	20	19	22
20	32	30	29	29	29	28	28	26	21	19	19	22
21	30	32	29	29	29	28	28	28	21	19	19	22
22	30	30	29	29	29	29	28	27	21	19	19	22
23	30	30	30	30	29	33	27	28	20	19	20	22
24	30	30	32	30	28	34	27	27	20	19	24	24
25	34	30	30	29	28	32	27	27	20	22	23	24
26	32	30	30	29	28	32	28	27	20	21	26	23
27	30	29	30	29	28	32	29	26	19	19	24	22
28	30	29	30	29	29	30	27	26	20	19	24	23
29	30	29	29	29	---	30	27	25	20	19	24	26
30	30	30	29	29	---	30	27	25	20	19	24	25
31	32	---	30	29	---	30	---	25	---	19	23	---
TOTAL	943	911	935	879	826	928	874	803	658	636	641	667
MEAN	30.4	30.4	30.2	28.4	29.5	29.9	29.1	25.9	21.9	20.5	20.7	22.2
MAX	34	32	33	30	33	35	32	28	25	23	26	26
MIN	29	29	29	25	28	28	27	24	19	19	18	20
CFSM	.17	.17	.17	.16	.17	.17	.16	.15	.12	.12	.12	.12
IN.	.20	.19	.19	.18	.17	.19	.18	.17	.14	.13	.13	.14
AC-FT	1870	1810	1850	1740	1640	1840	1730	1590	1310	1260	1270	1320

CAL YR 1976 TOTAL 20820 MEAN 56.9 MAX 302 MIN 20 CFSM .32 IN 4.33 AC-FT 41300
WTR YR 1977 TOTAL 9701 MEAN 26.6 MAX 35 MIN 18 CFSM .15 IN 2.02 AC-FT 19240

12435500 FEEDER CANAL AT GRAND COULEE, WA

LOCATION.--Lat 47°57'05", long 118°59'40", on line between secs.1 and 2, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, on left bank at Grand Coulee, 0.2 mi (0.3 km) downstream from intake and 0.5 mi (0.8 km) southwest of Grand Coulee Dam.

PERIOD OF RECORD.--October 1951 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,550.0 ft (472.44 m) above mean sea level, Bureau of Reclamation datum, adjustment of 1937.

REMARKS.--Records excellent. Water is pumped (beginning May 1951) from Franklin D. Roosevelt Lake behind Grand Coulee Dam, through a lift of about 280 ft (85 m) into feeder canal for a distance of 2 mi (3.2 km) into Banks Lake (formerly called equalizing reservoir). From Banks Lake it is distributed through a system of canals to the Columbia Basin project. Daily discharge computed from pump rating and head. On December 23, 1974, two pump generators (Nos. 7 and 8) were put into operation; these are used to generate power during peak power demand periods in winter months by utilizing the water stored in Banks Lake and returning it back into Franklin D. Roosevelt Lake. Water will be pumped into Banks Lake during periods of low power demand.

COOPERATION.--Discharge records furnished by Bureau of Reclamation; records reviewed and pump discharge checked with discharge measurements by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 12,500 ft^3/s (354 m^3/s) July 30, 1974; minimum daily discharge 1,920 ft^3/s (54.4 m^3/s) Feb. 24, 1975, reverse flow from Banks Lake.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 9,560 ft^3/s (271 m^3/s) Aug. 12; minimum daily discharge, 427 ft^3/s (12.1 m^3/s) Nov. 9, reverse flow from Banks Lake.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5040	646	.00	.00	.00	.00	5540	8360	8680	7780	9550	6390
2	3520	1930	.00	.00	.00	.00	5500	8370	8620	7800	9550	6380
3	3520	443	.00	.00	.00	.00	5510	8350	7490	7810	7140	6380
4	3520	.00	.00	.00	.00	.00	5460	8350	8710	7840	6380	6380
5	3520	.00	.00	.00	.00	.00	5540	8370	8780	7850	6380	6380
6	4040	.00	.00	.00	.00	.00	5560	8370	8830	7850	6390	6380
7	2590	.00	.00	.00	.00	.00	5580	8380	8880	7850	6400	3980
8	1950	.00	.00	.00	.00	.00	5600	8410	8920	7850	6400	.00
9	1930	-427	.00	.00	.00	.00	5620	8440	8980	7860	6410	.00
10	1930	.00	.00	.00	.00	.00	5640	8410	9040	7870	7000	.00
11	1930	.00	.00	.00	.00	.00	5660	8400	9080	6390	9510	.00
12	1930	.00	.00	.00	.00	.00	5680	8390	9130	6320	9560	.00
13	1940	.00	.00	.00	.00	.00	5660	8100	9170	6330	9550	.00
14	2980	.00	.00	.00	.00	.00	5600	8390	9170	6330	9550	.00
15	3870	.00	.00	.00	.00	.00	5440	8420	8490	6330	9540	.00
16	3860	.00	.00	.00	.00	.00	5560	8440	7670	6330	9030	.00
17	3860	.00	.00	.00	256	.00	5570	8420	7520	6340	8980	.00
18	2530	.00	.00	.00	559	.00	5580	8420	7650	6350	9510	.00
19	1930	.00	.00	.00	565	.00	5570	8420	7650	6350	9500	.00
20	1930	.00	.00	.00	1510	.00	5560	7990	7660	6350	9510	.00
21	1930	.00	.00	.00	1510	.00	5550	8470	7620	6340	9520	.00
22	987	.00	.00	.00	1500	.00	5530	8530	7680	6340	6610	.00
23	643	.00	.00	.00	809	.00	5520	8560	7690	6340	6370	.00
24	1930	.00	.00	.00	.00	.00	5310	8540	7700	6360	6370	.00
25	643	.00	.00	.00	.00	.00	5540	8540	7710	6370	6380	.00
26	691	.00	.00	.00	.00	.00	5540	8530	7730	4600	6380	.00
27	631	.00	.00	.00	.00	.00	5550	8530	7740	7960	6390	.00
28	645	.00	.00	.00	.00	.00	5560	8570	7750	8700	6400	.00
29	646	.00	.00	.00	---	1110	6030	8630	7760	8510	6400	.00
30	1940	.00	.00	.00	---	2740	8340	8680	7770	9530	6400	.00
31	1940	---	.00	.00	---	4550	---	8690	---	9560	6400	---
TOTAL	70946	2592.00	.00	.00	6709.00	8440.00	164900	261470	247270	222370	239460	42270.00
MEAN	2289	86.4	.000	.000	240	272	5663	8435	8242	7173	7725	1409
MAX	5040	1930	.00	.00	1510	4550	8340	8690	9170	9560	9560	6390
MIN	631	-427	.00	.00	.00	.00	5310	7990	7490	4600	6370	.00
AC-FT	140700	5140	.00	.00	13310	16740	337000	518600	490500	441100	475000	83840

CAL YR 1976 TOTAL 1179237.00 MEAN 3222 MAX 11000 MIN -1750 AC-FT 2339000
WTR YR 1977 TOTAL 1271427.00 MEAN 3483 MAX 9560 MIN -427 AC-FT 2522000

12436000 FRANKLIN D. ROOSEVELT LAKE AT GRAND COULEE DAM, WA

LOCATION.--Lat 47°57'20", long 118°59'02", near center of sec.1, T.28 N., R.30 E., Grant County, Hydrologic Unit 17020001, in block 12 of Grand Coulee Dam on Columbia River, and at mile 596.6 (959.9 km).

DRAINAGE AREA.--74,700 mi² (193,500 km²) approximately.

PERIOD OF RECORD.--April 1938 to current year. Prior to October 1943, published as Columbia River Reservoir at Grand Coulee Dam.

REVISED RECORDS.--WSP 1286: 1942, 1945(M). WSP 1316: 1942 (May monthend contents). WSP 1933: Drainage area.

CORRECTIONS.--WRD Wash. 1973: 1965, 1967. WDR WA-75-1: 1974 monthend contents.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level, Bureau of Reclamation datum, adjustment of 1937, or 1.425 ft (0.434 m) above mean sea level (levels by Bureau of Reclamation). Prior to Apr. 24, 1942, nonrecording gage at site 2,000 ft (610 m) upstream at same datum.

REMARKS.--Reservoir is formed by concrete dam; construction of dam began in 1934; completed in 1941; storage began early in construction period. Capacity, 5,022,179 acre-ft (6,190 hm³) between elevations, 1,208 ft (368.2 m), proposed lower limit of operation, and 1,288 ft (392.6 m), top of gates. Capacity increased to 5,185,452 acre-ft (6,390 hm³) by use of 2 ft (0.6 m) flashboards installed after high-water period each year beginning August 1961. Storage below 1,208 ft (368.2 m), 4,209,207 acre-ft (5,190 hm³). Figures given herein represent total contents. Water is used for power development and irrigation. Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversions by Feeder Canal (see (12435500) and for irrigation of about 350,000 acres (141,700 hm²) in the United States plus an additional 37,000 acres (15,000 hm²) in Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents recorded, 9,586,200 acre-ft (11,800 hm³) July 17, 1942, June 3, 1945, elevation, 1,290.5 ft (393.28 m); maximum elevation, 1,290.36 ft (393.307 m), Aug. 6, 1976; minimum contents observed, 16,200 acre-ft (20.0 hm³) Aug. 29, 1938, elevation 956.1 ft (291.42 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 9,335,948 acre-ft (11,500 hm³) Aug. 30, elevation, 1,289.26 ft (392.966 m); minimum, 5,704,905 acre-ft (7,030 hm³) Apr. 23, elevation, 1,236.99 ft (377.035 m).

Capacity table dated October 24, 1975 (elevation, in feet, and contents, in acre-feet)
(Prepared by Geological Survey from data furnished by Bureau of Reclamation)

1,210.0	4,301,035	1,270.0	7,864,082
1,230.0	5,308,657	1,291.0	9,477,261
1,250.0	6,501,603		

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
INSTANTANEOUS OBSERVATIONS AT 2400

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1287.80	1288.33	1285.97	1287.12	1275.75	1258.22	1239.06	1240.25	1253.57	1278.53	1287.40	1288.09
2	1287.65	1288.22	1285.96	1286.86	1275.15	1257.52	1239.19	1239.73	1253.67	1279.63	1287.35	1287.74
3	1287.77	1288.01	1285.72	1286.60	1274.71	1256.98	1239.69	1239.60	1254.22	1280.62	1287.30	1287.72
4	1287.72	1287.80	1285.84	1286.59	1274.26	1256.30	1240.11	1240.23	1256.18	1281.65	1287.38	1287.93
5	1287.64	1287.57	1286.24	1285.85	1273.56	1255.83	1240.37	1240.31	1258.73	1281.85	1287.48	1288.30
6	1287.69	1287.92	1286.34	1285.12	1272.83	1255.41	1241.26	1240.39	1260.01	1281.82	1287.94	1288.22
7	1287.77	1288.32	1287.02	1284.72	1272.54	1254.61	1241.96	1240.95	1261.71	1281.70	1288.65	1288.19
8	1287.76	1288.56	1287.41	1284.31	1272.09	1253.73	1242.50	1242.64	1263.61	1281.91	1288.79	1288.16
9	1287.70	1288.64	1287.77	1284.16	1272.20	1253.08	1243.32	1242.41	1265.76	1282.72	1288.76	1287.97
10	1287.97	1288.52	1287.95	1283.70	1272.32	1252.77	1244.41	1241.97	1267.52	1283.64	1288.22	1288.21
11	1288.03	1288.40	1288.28	1283.59	1272.48	1252.68	1244.29	1241.93	1269.27	1283.97	1287.85	1288.79
12	1287.94	1287.95	1288.70	1283.74	1272.27	1252.33	1243.68	1241.99	1271.39	1284.27	1287.18	1288.59
13	1287.89	1287.57	1288.90	1283.57	1271.78	1252.78	1242.45	1242.00	1272.31	1284.25	1287.21	1288.46
14	1287.78	1287.84	1288.77	1283.64	1271.26	1251.54	1240.84	1242.31	1272.72	1284.20	1287.48	1288.34
15	1287.69	1287.72	1288.93	1283.68	1270.68	1250.75	1239.83	1243.66	1272.84	1284.23	1287.08	1288.15
16	1287.48	1287.43	1288.98	1284.08	1269.73	1249.84	1239.62	1243.61	1272.67	1284.33	1286.63	1287.97
17	1287.33	1287.37	1288.69	1284.27	1268.61	1248.94	1240.21	1243.41	1272.14	1284.90	1286.27	1288.38
18	1287.23	1287.38	1288.81	1284.87	1267.94	1248.33	1239.66	1243.65	1272.34	1284.89	1286.10	1288.98
19	1287.10	1287.27	1288.82	1285.05	1267.65	1248.18	1239.27	1244.22	1272.60	1284.93	1286.09	1288.71
20	1286.97	1287.59	1288.22	1284.96	1267.20	1248.28	1238.61	1244.75	1272.90	1284.72	1286.45	1288.38
21	1286.96	1287.73	1287.55	1284.99	1265.96	1247.78	1237.84	1246.28	1273.44	1284.52	1286.98	1288.25
22	1286.93	1287.07	1287.23	1285.07	1264.57	1246.98	1237.28	1248.27	1273.88	1284.51	1287.18	1288.01
23	1286.84	1286.36	1286.91	1284.90	1263.28	1245.98	1237.23	1248.05	1274.45	1284.83	1287.22	1287.78
24	1286.78	1286.13	1286.76	1284.18	1262.32	1244.98	1237.79	1248.04	1274.85	1285.73	1287.25	1287.65
25	1287.21	1286.55	1287.40	1283.13	1261.11	1244.11	1237.22	1248.22	1275.74	1286.16	1287.42	1287.85
26	1287.54	1286.14	1288.17	1281.83	1260.39	1243.50	1237.52	1248.04	1276.29	1286.38	1287.78	1287.31
27	1287.88	1285.77	1288.14	1280.82	1260.15	1242.97	1238.01	1248.76	1276.87	1286.44	1288.43	1286.77
28	1288.14	1285.74	1287.78	1279.54	1259.12	1241.84	1238.60	1250.41	1277.07	1286.24	1289.03	1286.60
29	1288.45	1285.69	1287.68	1278.32	---	1240.98	1238.91	1252.40	1277.59	1286.11	1289.11	1286.47
30	1288.63	1285.85	1287.36	1277.30	---	1240.56	1239.61	1253.70	1278.19	1286.18	1288.91	1286.50
31	1288.77	---	1287.10	1276.48	---	1239.49	---	1253.76	---	1287.20	1288.51	---
MEAN	1287.65	1287.38	1287.59	1283.65	1269.00	1249.59	1240.01	1244.71	1269.15	1283.97	1287.60	1287.95
MAX	1288.77	1288.64	1288.98	1287.12	1275.75	1258.22	1244.41	1253.76	1278.19	1287.20	1289.11	1288.98
MIN	1286.78	1285.69	1285.72	1276.48	1259.12	1239.49	1237.22	1239.60	1253.57	1278.53	1286.09	1286.47
†	9,293,942	9,058,721	9,158,749	8,338,821	7,102,959	5,852,310	5,859,462	6,745,162	8,466,872	9,166,795	9,272,777	9,117,017
‡	+39,041	-235,221	+100,028	-819,928	-1,235,862	-1,250,649	+7,152	+885,700	+1,721,710	+699,923	+105,982	-155,760

CAL YR 1976:........................‡ -226,041
WTR YR 1977:........................‡ -137,884

† Total contents, in acre feet, at end of month.
‡ Change in contents in acre feet.

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA

LOCATION.--Lat 47°57'56", long 118°58'54", in SW¼SE¼ sec.36, T.29 N., R.30 E., Douglas County, Hydrologic Unit 17020005, in pier 3 on west side of bridge on State Highway 155, 3,200 ft (975 m) downstream from Grand Coulee Dam, 14.2 mi (22.8 km) upstream from Nespelem River, and at mile 596.3 (959.4 km).

DRAINAGE AREA.--74,700 mi² (193,500 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1913 to June1923 (monthly discharge only), July to December 1923, January 1924 5o May 1928 (monthly discharge only), June 1928 to current year. Published as "at Grand Coulee near Nespelem" prior to 1936 and as "at Grand Coulee" 1936-42.

REVISED RECORDS.--WSP 1286: 1942, 1947. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level, Bureau of Reclamation datum, adjustment of 1937. June 27 to Dec. 31, 1923, June 12, 1928, to Mar. 31, 1931, nonrecording gage at site 0.5 mi (0.8 km) upstream at datum 2.4 ft (0.7 m) lower. Apr. 1, 1931, to Dec. 31, 1935, water-stage recorder at site 850 ft (259 m) downstream at present datum. Since June 12, 1955, auxiliary water-stage recorder 5.3 mi (8.5 km) downstream from [illegible] gage at datum 1.42 ft (0.433 m) lower.

REMARKS.--Water discharge records good. Flow is regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversions by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--64 years, 110,500 ft³/s (3,129 m³/s), 80,060,000 acre-ft/yr (98,700 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 637,800 ft³/s (18,100 m³/s) June 12, 1948, elevation, 987.90 ft (301.112 m); minimum, 14,900 ft³/s (422 m³/s) Dec. 17, 1956, elevation, 934.37 ft (284.796 m); minimum daily, 15,300 ft³s (433 m³/s) Feb. 1, 1937.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a discharge of 725,000 ft³/s (20,500 m³/s), estimated.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 139,000 ft³/s (3,940 m³/s) Jan. 26; maximum elevation, 960.51 ft (292.763 m) Feb. 6; minimum daily discharge, 33,300 ft³/s (943 m³/s) July 10; minimum elevation, 942.68 ft (287.329 m) Aug. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123000	109000	102000	103000	123000	101000	82200	41400	115000	62200	81800	89100
2	98200	95500	111000	107000	120000	106000	62400	93000	107000	41900	88200	84300
3	95100	103000	105000	107000	113000	95000	47100	96200	102000	38000	91300	63900
4	101000	95800	85200	87700	110000	94000	67700	83100	52200	43600	76500	60100
5	104000	104000	77100	116000	119000	95200	77000	90400	35000	69500	82400	61400
6	103000	72000	104000	116000	114000	82700	63100	86600	71000	80800	57700	86500
7	99700	74500	81500	110000	84600	105000	66900	56100	60200	79300	50200	85800
8	104000	85700	81300	100000	98800	104000	63600	35000	63100	66800	85100	88800
9	105000	98400	99900	109000	79100	97900	58900	88600	54000	41100	86900	89600
10	89200	88400	103000	129000	80300	90700	35500	98800	63400	33300	104000	70400
11	98300	99500	81100	114000	84100	88500	67100	104000	47100	62700	88200	55700
12	103000	117000	81400	97000	75200	86200	59500	101000	38700	70800	101000	90400
13	107000	109000	87100	122000	64400	55200	68000	96300	69100	81800	86800	86500
14	106000	83700	108000	95700	91000	108000	74000	89600	65500	84500	58300	87700
15	108000	57900	92400	97500	84100	102000	73800	56600	78300	83700	89400	92200
16	107000	118000	106000	84200	95900	99900	57500	106000	91200	78000	91100	94000
17	107000	105000	111000	93400	100000	102000	46800	106000	100000	56800	83400	62400
18	106000	125000	96100	72700	85700	92600	81900	104000	68700	83800	82400	56800
19	108000	97100	94300	97000	56300	70000	82000	96400	58700	84500	78700	89400
20	108000	78300	111000	99200	64700	62900	82900	99600	77600	86300	61800	87700
21	105000	73900	116000	108000	94000	88700	83100	61400	76400	88400	53700	82500
22	108000	100000	107000	101000	116000	98100	83900	56500	76800	88100	77400	86500
23	109000	111000	101000	95300	105000	110000	59400	131000	66400	75400	80400	88100
24	108000	90300	92300	117000	102000	105000	36600	118000	69700	49800	79900	80200
25	104000	54300	56500	125000	105000	102000	75900	114000	58100	77400	78100	62300
26	105000	95300	56800	139000	91400	88400	62300	128000	59900	98800	74500	89500
27	108000	97000	103000	122000	60600	88100	58600	102000	74900	90500	57100	83700
28	109000	93900	111000	134000	102000	112000	52000	55900	76800	89100	57600	75600
29	108000	103000	107000	128000	---	94700	58100	38000	74100	93900	81400	69600
30	109000	106000	108000	128000	---	86500	47900	88300	67000	81800	85700	58800
31	123000	---	113000	128000	---	104000	---	100000	---	44900	88200	---
TOTAL	3256500	2841500	2990200	3380700	2619200	2921300	1935700	2703800	2117900	2207500	2419200	2364500
MEAN	105000	94720	96460	109100	93540	94240	64520	87220	70600	71210	78040	78820
MAX	123000	125000	116000	139000	123000	112000	83900	131000	115000	98800	104000	94000
MIN	89200	54300	56500	72700	56300	55200	35500	35000	35000	33300	50200	55700
AC-FT	6459000	5636000	5931000	6706000	5195000	5794000	3839000	5363000	4201000	4379000	4798000	4690000

CAL YR 1976 TOTAL 48546800 MEAN 132600 MAX 227000 MIN 54300 AC-FT 96290000
WTR YR 1977 TOTAL 31758000 MEAN 87010 MAX 139000 MIN 33300 AC-FT 62990000

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-58, 1972, 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1950 to September 1958.
pH: November 1950 to September 1953.
WATER TEMPERATURES: November 1950 to September 1958, July 1974 to current year.

INSTRUMENTATION.--Temperature recorder since July 1974.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 18.5°C Aug. 28 to Sept. 12, Sept. 20, 21, 1975, Sept. 10-27, 1977; minimum, 2.0°C Feb. 10-15, 17-28, Mar.1-15, 19, 20, 1975.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 18.5°C Sept. 10-27; minimum, 2.5°C Feb. 3 to Mar. 3.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	15.5	15.5	15.5	14.5	14.0	14.0	10.5	10.5	10.5	6.5	6.5	6.5
2	15.5	15.5	15.5	14.0	14.0	14.0	10.5	10.5	10.5	6.5	6.0	6.0
3	15.5	15.0	15.5	14.0	14.0	14.0	10.5	10.5	10.5	6.0	6.0	6.0
4	15.5	15.0	15.5	14.0	14.0	14.0	10.5	10.0	10.5	6.0	6.0	6.0
5	15.5	15.0	15.5	13.5	13.5	13.5	10.0	10.0	10.0	6.0	5.5	6.0
6	15.5	15.0	15.0	13.5	13.0	13.0	10.0	9.5	10.0	5.5	5.5	5.5
7	15.5	15.0	15.0	13.5	13.0	13.0	9.5	9.5	9.5	5.5	5.5	5.5
8	15.5	15.0	15.5	13.0	13.0	13.0	9.5	9.5	9.5	5.5	5.5	5.5
9	15.5	15.0	15.5	13.0	12.5	13.0	9.5	9.5	9.5	5.0	5.0	5.0
10	15.5	15.0	15.5	13.0	12.5	12.5	9.5	9.0	9.0	5.0	5.0	5.0
11	15.5	15.0	15.5	12.5	12.5	12.5	9.0	9.0	9.0	5.0	5.0	5.0
12	15.5	15.0	15.0	12.5	12.0	12.0	9.0	9.0	9.0	5.0	4.5	4.5
13	15.5	15.0	15.0	12.5	12.0	12.0	9.0	8.5	8.5	4.5	4.5	4.5
14	15.5	15.0	15.0	12.5	12.0	12.0	8.5	8.5	8.5	4.5	4.5	4.5
15	15.5	15.0	15.0	12.5	12.0	12.5	8.5	8.5	8.5	4.5	4.0	4.5
16	15.5	15.0	15.0	12.5	12.0	12.5	8.5	8.5	8.5	4.0	4.0	4.0
17	15.0	15.0	15.0	12.5	12.0	12.0	8.5	8.5	8.5	4.0	4.0	4.0
18	15.0	15.0	15.0	12.0	11.5	12.0	8.5	8.0	8.0	4.0	3.5	4.0
19	15.0	15.0	15.0	11.5	10.5	11.5	8.0	8.0	8.0	3.5	3.5	3.5
20	15.0	15.0	15.0	11.5	11.0	11.5	8.0	8.0	8.0	3.5	3.5	3.5
21	15.0	15.0	15.0	11.5	11.0	11.5	8.0	7.5	8.0	3.5	3.5	3.5
22	15.0	15.0	15.0	11.5	11.0	11.0	7.5	7.5	7.5	3.5	3.5	3.5
23	15.0	15.0	15.0	11.0	11.0	11.0	7.5	7.0	7.5	3.5	3.5	3.5
24	15.0	14.5	15.0	11.5	11.0	11.0	7.0	7.0	7.0	3.5	3.5	3.5
25	15.0	14.5	14.5	11.0	10.5	11.0	7.0	7.0	7.0	3.5	3.5	3.5
26	15.0	14.5	14.5	11.0	10.0	10.5	7.0	6.5	7.0	3.5	3.5	3.5
27	15.0	14.5	14.5	10.5	10.5	10.5	6.5	6.5	6.5	3.5	3.5	3.5
28	14.5	14.5	14.5	10.5	10.5	10.5	6.5	6.5	6.5	3.5	3.5	3.5
29	14.5	14.0	14.5	10.5	10.5	10.5	6.5	6.5	6.5	3.5	3.0	3.0
30	14.5	14.0	14.5	10.5	10.5	10.5	6.5	6.5	6.5	3.0	3.0	3.0
31	14.5	14.0	14.5	---	---	---	6.5	6.5	6.5	3.0	3.0	3.0
MONTH	15.5	14.0	15.0	14.5	10.0	12.0	10.5	6.5	8.5	6.5	3.0	4.5

12436500 COLUMBIA RIVER AT GRAND COULEE DAM, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.0	3.0	3.0	2.5	2.5	2.5	4.5	4.5	4.5	7.0	7.0	7.0
2	3.0	3.0	3.0	2.5	2.5	2.5	4.5	4.5	4.5	7.5	7.0	7.0
3	3.0	2.5	3.0	3.0	2.5	2.5	5.0	4.5	5.0	7.5	7.0	7.0
4	2.5	2.5	2.5	3.0	3.0	3.0	5.0	5.0	5.0	7.0	7.0	7.0
5	2.5	2.5	2.5	3.0	3.0	3.0	5.0	5.0	5.0	7.5	7.0	7.0
6	2.5	2.5	2.5	3.0	3.0	3.0	5.0	5.0	5.0	7.5	7.5	7.5
7	2.5	2.5	2.5	3.0	3.0	3.0	5.0	5.0	5.0	7.5	7.5	7.5
8	2.5	2.5	2.5	3.0	3.0	3.0	5.5	5.0	5.5	7.0	7.0	7.0
9	2.5	2.5	2.5	3.0	3.0	3.0	5.5	5.5	5.5	7.5	7.5	7.5
10	2.5	2.5	2.5	3.0	3.0	3.0	5.5	5.5	5.5	8.5	7.5	7.5
11	2.5	2.5	2.5	3.0	3.0	3.0	5.5	5.5	5.5	8.0	8.0	8.0
12	2.5	2.5	2.5	3.0	3.0	3.0	5.5	5.5	5.5	8.0	8.0	8.0
13	2.5	2.5	2.5	3.5	3.0	3.5	5.5	5.5	5.5	8.0	8.0	8.0
14	2.5	2.5	2.5	3.5	3.5	3.5	5.5	5.5	5.5	8.5	8.0	8.0
15	2.5	2.5	2.5	3.5	3.5	3.5	6.0	5.5	5.5	9.0	8.0	8.0
16	2.5	2.5	2.5	3.5	3.5	3.5	6.0	6.0	6.0	9.0	8.0	8.5
17	2.5	2.5	2.5	3.5	3.5	3.5	6.0	6.0	6.0	8.5	8.5	8.5
18	2.5	2.5	2.5	3.5	3.5	3.5	6.0	6.0	6.0	9.0	8.5	8.5
19	2.5	2.5	2.5	3.5	3.5	3.5	6.0	6.0	6.0	9.0	9.0	9.0
20	2.5	2.5	2.5	4.0	3.5	3.5	6.0	6.0	6.0	9.0	9.0	9.0
21	2.5	2.5	2.5	4.0	4.0	4.0	6.0	6.0	6.0	9.0	9.0	9.0
22	2.5	2.5	2.5	4.0	4.0	4.0	6.5	6.0	6.0	9.0	9.0	9.0
23	2.5	2.5	2.5	4.0	4.0	4.0	6.5	6.5	6.5	9.5	9.0	9.0
24	2.5	2.5	2.5	4.0	4.0	4.0	6.5	6.5	6.5	9.5	9.0	9.0
25	2.5	2.5	2.5	4.0	4.0	4.0	6.5	6.5	6.5	9.5	9.5	9.5
26	2.5	2.5	2.5	4.0	4.0	4.0	6.5	6.5	6.5	9.5	9.5	9.5
27	2.5	2.5	2.5	4.5	4.0	4.0	6.5	6.5	6.5	9.5	9.5	9.5
28	2.5	2.5	2.5	4.5	4.5	4.5	7.0	6.5	6.5	10.0	9.5	9.5
29	---	---	---	4.5	4.5	4.5	7.0	6.5	7.0	9.5	9.5	9.5
30	---	---	---	4.5	4.5	4.5	7.0	7.0	7.0	10.0	9.5	9.5
31	---	---	---	4.5	4.5	4.5	---	---	---	9.5	9.5	9.5
MONTH	3.0	2.5	2.5	4.5	2.5		7.0	4.5	6.0	10.0	7.0	8.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	9.5	9.5	9.5	10.5	10.5	10.5	15.5	15.0	15.0	17.5	17.0	17.5
2	9.5	9.5	9.5	11.0	10.5	11.0	15.5	15.0	15.0	17.5	17.0	17.5
3	10.0	9.5	9.5	11.0	10.5	11.0	16.0	15.0	15.5	18.0	17.5	17.5
4	10.0	10.0	10.0	11.0	10.5	11.0	15.5	15.0	15.5	18.0	17.5	17.5
5	10.0	10.0	10.0	11.5	11.0	11.0	16.0	15.5	15.5	18.0	17.5	18.0
6	10.0	10.0	10.0	11.5	11.0	11.0	16.0	15.5	15.5	18.0	17.5	18.0
7	10.5	10.0	10.0	12.0	11.0	11.5	16.0	15.5	15.5	18.0	17.5	18.0
8	10.5	10.0	10.0	12.0	11.0	11.5	16.0	15.5	16.0	18.0	17.5	18.0
9	10.5	10.0	10.0	11.5	11.0	11.5	16.5	16.0	16.0	18.0	18.0	18.0
10	10.5	10.0	10.0	11.5	11.5	11.5	16.5	16.0	16.0	18.5	18.0	18.0
11	10.0	10.0	10.0	12.0	11.5	11.5	16.5	16.0	16.0	18.5	18.0	18.5
12	10.0	10.0	10.0	12.5	11.5	11.5	16.5	16.0	16.5	18.5	18.5	18.5
13	11.0	10.0	10.5	12.0	11.5	12.0	17.0	16.0	16.5	18.5	18.5	18.5
14	10.5	10.5	10.5	13.0	12.0	12.0	16.5	16.0	16.5	18.5	18.5	18.5
15	10.5	10.5	10.5	12.5	12.0	12.0	16.5	16.5	16.5	18.5	18.5	18.5
16	10.5	10.5	10.5	13.0	12.0	12.0	16.5	16.5	16.5	18.5	18.5	18.5
17	11.0	10.5	10.5	13.0	12.0	12.5	16.5	16.5	16.5	18.5	18.5	18.5
18	10.5	10.5	10.5	13.0	12.0	12.5	17.0	16.5	16.5	18.5	18.5	18.5
19	10.5	10.5	10.5	14.0	13.0	13.0	16.5	16.5	16.5	18.5	18.5	18.5
20	10.5	10.5	10.5	13.5	12.5	13.0	17.0	16.5	16.5	18.5	18.5	18.5
21	10.5	10.5	10.5	14.0	13.0	13.5	17.0	16.5	16.5	18.5	18.5	18.5
22	10.5	10.5	10.5	14.0	13.0	13.5	17.0	16.5	17.0	18.5	18.5	18.5
23	10.5	10.5	10.5	14.5	13.5	13.5	17.0	16.5	16.5	18.5	18.5	18.5
24	10.5	10.5	10.5	13.5	13.0	13.5	17.0	16.5	17.0	18.5	18.5	18.5
25	10.5	10.5	10.5	14.0	13.5	13.5	17.0	17.0	17.0	18.5	18.5	18.5
26	10.5	10.5	10.5	14.5	13.5	14.0	17.0	17.0	17.0	18.5	18.5	18.5
27	11.0	10.5	10.5	14.5	14.0	14.0	17.5	17.0	17.0	18.5	18.0	18.5
28	10.5	10.5	10.5	15.0	14.0	14.5	17.5	17.0	17.0	18.0	18.0	18.0
29	10.5	10.5	10.5	15.0	14.5	14.5	17.0	17.0	17.0	18.0	18.0	18.0
30	11.0	10.5	11.0	15.0	14.5	15.0	17.5	17.0	17.5	18.0	18.0	18.0
31	---	---	---	15.0	14.5	14.5	17.5	17.0	17.5	---	---	---
MONTH	11.0	9.5	10.5	15.0	10.5	12.5	17.5	15.0	16.5	18.5	17.0	18.0
YEAR	18.5	2.5	10.0									

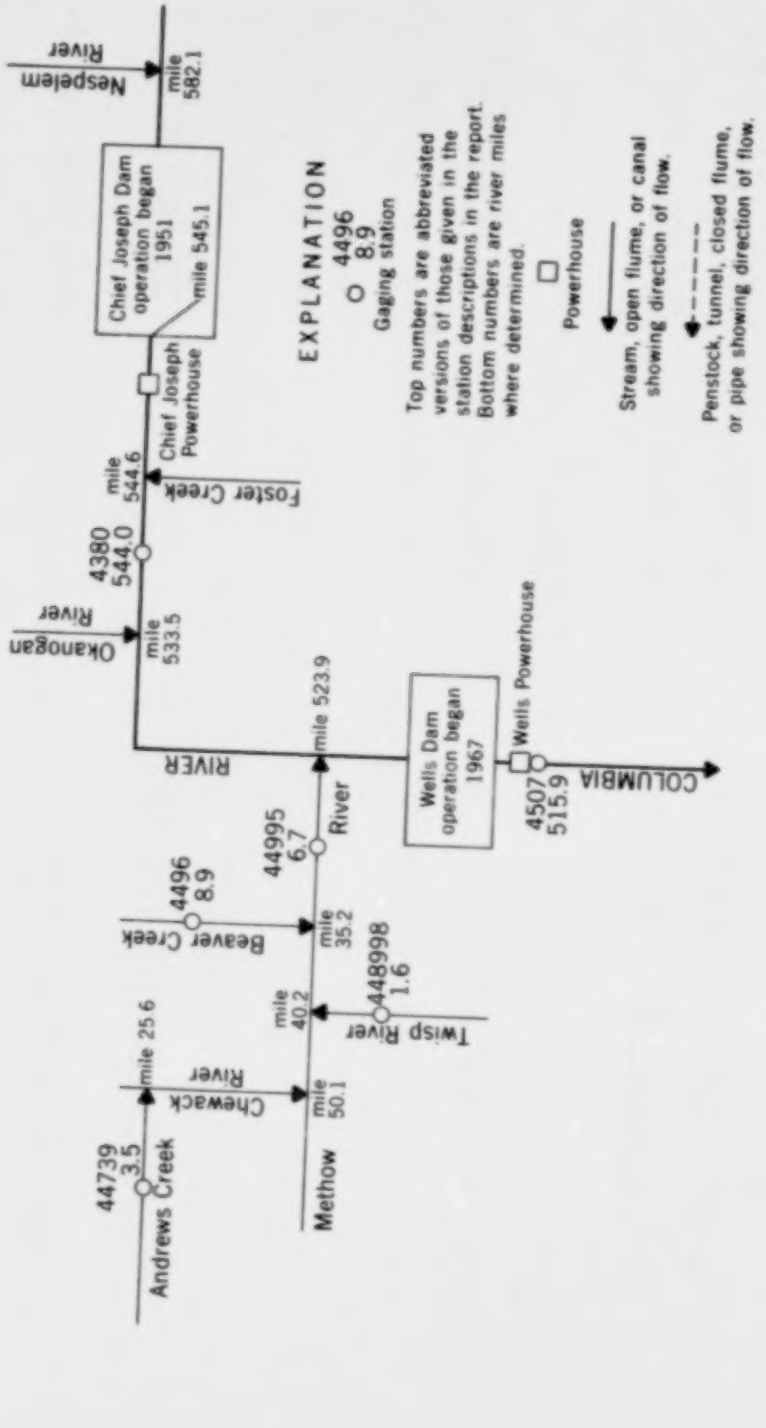
Nespelem River
mile 582.1
Chief Joseph Dam operation began 1951
mile 545.1
Chief Joseph Powerhouse
Foster Creek
mile 544.6
4380
544.0
Okanogan River
mile 533.5
mile 523.9
RIVER
Wells Dam operation began 1967
Wells Powerhouse
4507
515.9
COLUMBIA
44995
6.7
River
4496
8.9
Beaver Creek
mile 35.2
448998
1.6
Twisp River
mile 40.2
mile 25.6
Chewack River
mile 50.1
44739
3.5
Andrews Creek
Methow
EXPLANATION
4496
8.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 10. Gaging stations in Columbia River basin from Chief Joseph to Wells Dam.

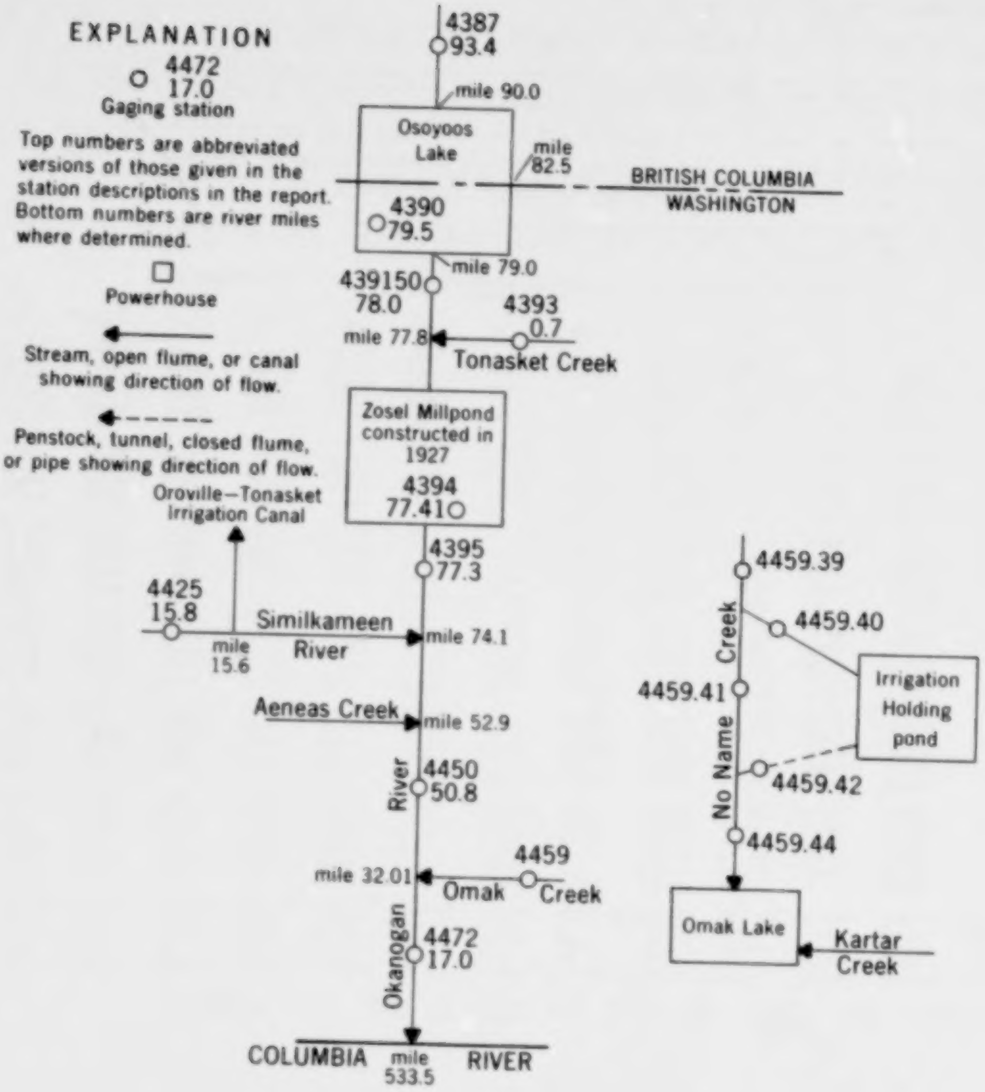
EXPLANATION
4472
17.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
4387
93.4
mile 90.0
Osoyoos Lake
mile 82.5
BRITISH COLUMBIA
WASHINGTON
4390
79.5
mile 79.0
439150
78.0
4393
0.7
mile 77.8
Tonasket Creek
Zosel Millpond constructed in 1927
4394
77.41
Oroville—Tonasket Irrigation Canal
4395
77.3
4425
15.8
Similkameen River
mile 15.6
mile 74.1
Aeneas Creek
mile 52.9
4450
50.8
mile 32.01
Omak Creek
4459
4472
17.0
Okanogan River
COLUMBIA RIVER
mile 533.5
4459.39
4459.40
No Name Creek
4459.41
Irrigation Holding pond
4459.42
4459.44
Omak Lake
Kartar Creek

Figure 11. Gaging stations in Okanogan River basin.

12438000 COLUMBIA RIVER AT BRIDGEPORT, WA

LOCATION.--Lat 48°00'24", long 119°39'51", in SW¼SW¼ sec.14, T.29 N., R.25 E., Douglas County, Hydrologic Unit 17020005, on left bank at Bridgeport, 1.0 mi (1.6 km) downstream from Foster Creek, 1.1 mi (1.8 km) downstream from Chief Joseph Dam, and at mile 544.0 (875.5 km).

DRAINAGE AREA.--75,700 mi² (196,100 km²), approximately.

PERIOD OF RECORD.--April 1952 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). Since May 26, 1967, auxiliary water-stage recorder 4,800 ft (1,460 m) upstream from base gage at same datum.

REMARKS.--Records good. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--25 years, 115,000 ft³/s (3,257 m³/s), 83,320,000 acre-ft/yr (103,000 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 495,800 ft³s (14,000 m³/s) June 11, 1961; maximum elevation, 792.20 ft (241.463 m) June 7, 1956; minimum observed discharge, 4,200 ft³/s (120 m³/s) Mar. 22, 1966, elevation, 746.91 ft (227.658 m); minimum daily discharge, 22,300 ft³/s (632 m³/s) Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 153,000 ft³/s (4,330 m³/s) Jan. 29; maximum elevation, 781.49 ft (238.198 m) Sept. 16; minimum daily discharge, 31,100 ft³/s (881 m³/s) Apr. 10; minimum elevation, 773.23 ft (235.680 m) Nov. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97000	92000	103000	110000	121000	95200	84100	66100	104000	62300	88000	83300
2	101000	91700	104000	96900	121000	99500	56500	93200	99200	55300	83000	85600
3	86900	93500	91300	113000	112000	98800	38400	90500	99300	36200	69300	55900
4	96800	97500	85100	105000	108000	98300	84500	82000	54500	61700	75100	51200
5	98400	95100	66300	111000	111000	95300	61100	85600	35500	67400	96000	53300
6	94400	71400	97900	112000	107000	87500	58400	83100	64300	79400	59000	82900
7	96100	67900	91500	100000	94800	92800	63800	56000	50700	77100	56000	86400
8	93200	80500	75900	103000	96300	97200	62800	33300	61800	65700	86300	91200
9	99100	90800	80100	106000	78700	97000	57600	87000	52000	61600	76300	85300
10	81900	99800	79600	124000	74000	93800	31100	99900	59600	32300	42700	63500
11	91300	105000	69400	113000	77000	89800	65100	101000	46300	62500	95300	55500
12	103000	94600	69700	108000	71900	86100	58400	102000	34000	69900	91700	90200
13	109000	105000	97600	88100	64300	61200	67000	97100	67400	77400	69100	85500
14	101000	65500	97900	104000	87400	98900	68500	87700	65600	84000	59700	89500
15	102000	102000	88400	85100	80800	94600	70800	57900	74500	83500	87200	89700
16	110000	95600	96100	67700	88700	98300	55000	98000	88200	73100	86300	89200
17	91000	88400	98100	87300	90500	99200	46700	102000	97000	57400	86100	62400
18	103000	98800	100000	77500	83000	95100	77000	98600	67100	85200	79300	51600
19	104000	88900	86600	90700	55300	67800	63500	95900	58900	78200	79100	86500
20	98200	73000	108000	99500	64200	59700	71200	98500	72900	64200	63600	81700
21	104000	63700	105000	101000	90800	82700	81400	62700	75100	80200	57400	70100
22	112000	97200	108000	113000	107000	87500	80100	59600	73300	89000	90100	80000
23	93500	98700	98400	121000	106000	91800	61000	123000	59500	60400	77000	82600
24	88200	96800	100000	129000	101000	96000	39700	123000	69100	50900	78700	73500
25	95000	51600	65200	120000	101000	98800	77500	111000	58400	72300	75200	55200
26	88900	79000	44700	116000	96900	93000	61300	105000	62300	79400	69600	85500
27	109000	88700	83300	123000	66300	78200	58100	101000	76300	87000	57700	76200
28	107000	84600	115000	136000	91300	95200	52400	62700	74200	87400	56100	69700
29	106000	106000	104000	153000	---	87400	61100	61900	77300	90800	70700	65900
30	107000	99900	103000	146000	---	85400	52100	73100	65600	73000	79400	58600
31	88900	---	103000	120000	---	88700	---	99200	---	51400	81900	---
TOTAL	3062800	2643200	2816100	3393800	2552200	2782800	1846200	2656200	2053500	2145800	2303500	2246900
MEAN	98800	88110	90840	109500	91150	89770	61540	85680	68450	69220	74690	74900
MAX	110000	106000	115000	153000	121000	99500	84100	123000	104000	90800	96000	91200
MIN	81900	67900	44700	67700	55300	59700	31100	33300	34000	32300	56000	51200
AC-FT	6075000	5243000	5586000	6732000	5062000	5570000	3662000	5269000	4073000	4256000	4569000	4457000

CAL YR 1976 TOTAL 46503000 MEAN 127100 MAX 219000 MIN 44100 AC-FT 92240000
WTR YR 1977 TOTAL 30583000 MEAN 83790 MAX 153000 MIN 31100 AC-FT 60660000

12438700 OKANAGAN RIVER NEAR OLIVER, BRITISH COLUMBIA
(International gaging station)

LOCATION.--Lat 49°06'55", long 119°33'50", approximately 75 ft (23 m) upstream from drop structure No. 3, 0.8 mi (1.3 km) downstream from Testalinden Creek, 4.2 mi (6.8 km) south of Oliver, and at mile 93.4 (150.3 km).

DRAINAGE AREA.--2,930 mi² (7,590 km²).

PERIOD OF RECORD.--October 1961 to current year in reports of Geological Survey. March 1944 to December 1948 and April 1952 to September 1961 in reports of Department of Northern Affairs and National Resources, Canada.

GAGE.--Water-stage recorder.

REMARKS.--Records good. Regulation by control dams at outlets of Okanagan and Skaha Lakes. Diversion for irrigation.

COOPERATION.--This station is maintained by Canada under agreement with the United States subsequent to Feb. 14, 1965.

AVERAGE DISCHARGE.--27 years (water years 1945-47, 1953-56, 1958-77), 610 ft³/s (17.28 m³/s), 441,900 acre-ft/yr (545 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,130 ft³/s (88.6 m³/s) May 27, 1974, gage height, 7.07 ft (2.155 m); minimum, 55.9 ft³/s (1.58 m³/s) Jan. 30, 1963, gage height, 0.63 ft (0.192 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,150 ft³/s (32.6 m³/s) Nov. 8, gage height, 4.23 ft (1.289 m); minimum daily, 179 ft³/s (5.07 m³/s) Apr. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	607	676	1020	372	606	233	211	258	289	229	306	333
2	610	951	1010	372	602	225	213	316	307	230	297	332
3	627	990	993	370	604	223	213	640	276	231	288	335
4	641	1030	986	386	403	222	213	612	276	236	271	342
5	655	1040	990	391	400	221	215	496	285	237	236	345
6	660	1040	991	410	397	219	252	442	288	235	235	335
7	662	1060	1000	404	380	217	209	440	288	231	251	333
8	662	1100	1010	411	332	216	262	431	315	220	270	306
9	616	1110	1010	409	276	217	271	370	291	225	272	276
10	616	952	1000	406	205	210	267	357	277	222	260	277
11	617	1076	1000	405	236	210	240	403	269	221	231	295
12	591	1060	1000	407	217	221	234	407	270	229	227	309
13	567	1050	966	413	213	210	228	442	280	235	227	326
14	560	1040	733	405	208	210	219	412	303	281	237	344
15	605	1030	728	392	211	211	211	309	325	286	245	345
16	609	1040	730	391	210	213	206	369	366	286	239	348
17	605	1030	683	391	210	212	196	343	323	284	214	352
18	606	1030	537	395	213	212	195	321	302	274	207	352
19	592	1030	503	386	222	222	179	293	265	225	183	362
20	611	1020	431	380	223	225	200	278	263	213	260	377
21	611	1030	352	397	215	210	197	276	260	187	263	301
22	612	1040	355	386	212	211	197	266	255	197	255	303
23	611	1040	359	384	213	215	205	262	253	244	251	303
24	607	817	359	385	213	213	235	301	248	287	267	422
25	593	1070	367	384	213	213	201	300	244	306	276	422
26	567	1060	376	383	213	206	341	371	261	296	284	430
27	566	1050	375	383	216	210	331	369	238	276	284	405
28	570	1040	366	386	224	219	300	336	235	285	282	393
29	573	1050	367	386	---	209	278	314	235	302	282	380
30	571	1060	373	403	---	207	267	280	230	300	278	381
31	572	---	372	407	---	207	---	256	---	303	308	---
TOTAL	18770	30460	21330	12220	7547	6707	7153	11600	8277	7819	7906	10600
MEAN	606	1015	688	394	270	216	238	377	276	252	255	353
MAX	662	1110	1020	413	606	233	341	640	366	306	308	430
MIN	566	676	352	372	208	206	179	256	230	187	183	276
AC-FT	37240	60430	42300	24240	14970	13300	14190	23100	16420	15510	15680	21030

CAL YR 1976 TOTAL 314203 MEAN 858 MAX 1620 MIN 252 AC-FT 623200
WTR YR 1977 TOTAL 150573 MEAN 413 MAX 1110 MIN 179 AC-FT 298700

12439000 OSOYOOS LAKE NEAR OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°57'24", long 119°26'10", in NW¼NE¼ sec.21, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on west shore 1 mi (1.6 km) north of Oroville, 3 mi (4.8 km) south of international boundary, and at mile 79.5 (127.9 km).

DRAINAGE AREA.--3,132 mi² (8,112 km²).

PERIOD OF RECORD.--July 1928 to current year.

REVISED RECORDS.--WSP 1346: Drainage area. WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Sept. 2, 1928, nonrecording gage and Sept. 2, 1928, to Nov. 9, 1929, water-stage recorder, 100 ft (30 m) south of international boundary. Nov. 10, 1929, to Sept. 7, 1930, Mar. 22, 1952, to Sept. 23, 1953, June 25, 1955, to Apr. 11, 1956, nonrecording gage and Sept. 8, 1930, to Mar. 21, 1952, Sept. 24, 1953, to June 24, 1955, Apr. 12, 1956, to Feb. 7, 1969, water-stage recorder at site 1 mi (1.6 km) south of international boundary. All elevations prior to Oct. 1, 1944, at datum 2.39 ft (0.728 m) lower. To convert from present datum to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert from present datum to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

REMARKS.--Approximately 44,000 acres (17,800 hm²) are irrigated above station in Canada. Elevation may occasionally be affected by dam at Zosel's mill in Oroville.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 917.11 ft (279.535 m) June 2, 3, 1972; minimum 908.82 ft (277.008 m), present datum, Oct. 14, 1929.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1894, reached an elevation of 918.8 ft ±0.5 ft (280.05 m ±0.15 m), present datum, 1 mi (1.6 km) below present lake outlet, from floodmark on old Okanogan Hotel Building, pointed out in 1930 by Mr. and Mrs. Stansbury, who kept a diary and operated the hotel in 1894.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 912.91 ft (278.252 m) May 6; minimum, 909.89 ft (277.334 m) Feb. 16.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	910.96	911.00	911.19	910.29	910.95	910.70	912.30	912.41	912.30	912.23	912.50	911.96
2	910.93	911.07	911.19	910.36	910.88	910.76	912.32	912.45	912.41	912.23	912.60	911.95
3	910.87	911.20	911.19	910.42	910.77	910.82	912.34	912.60	912.40	912.22	912.64	911.95
4	910.83	911.31	911.17	910.50	910.70	910.88	912.37	912.75	912.40	912.21	912.64	911.96
5	910.86	911.35	911.15	910.55	910.62	910.93	912.30	912.82	912.41	912.21	912.62	912.00
6	910.89	911.37	911.16	910.61	910.50	910.99	912.40	912.87	912.39	912.21	912.63	912.01
7	910.92	911.37	911.12	910.67	910.40	911.04	912.43	912.88	912.41	912.22	912.63	912.01
8	910.95	911.40	911.13	910.73	910.42	911.10	912.45	912.89	912.46	912.21	912.64	912.00
9	910.97	911.45	911.16	910.79	910.33	911.16	912.47	912.90	912.45	912.24	912.64	911.98
10	910.96	911.40	911.16	910.66	910.25	911.23	912.48	912.86	912.44	912.21	912.61	911.96
11	911.00	911.41	911.15	910.80	910.17	911.26	912.50	912.88	912.44	912.21	912.58	911.93
12	911.01	911.43	911.15	910.95	910.00	911.33	912.50	912.90	912.45	912.21	912.56	911.92
13	911.01	911.43	911.16	911.08	909.99	911.40	912.48	912.90	912.47	912.20	912.54	911.92
14	910.99	911.43	911.18	911.06	909.93	911.44	912.46	912.87	912.49	912.22	912.52	911.93
15	910.97	911.43	911.00	911.09	909.93	911.51	912.42	912.81	912.50	912.23	912.46	911.91
16	910.97	911.44	910.96	911.12	909.93	911.59	912.42	912.77	912.53	912.26	912.40	911.92
17	910.97	911.42	910.96	911.15	909.97	911.64	912.40	912.73	912.54	912.27	912.34	911.93
18	910.96	911.40	910.92	911.20	910.01	911.69	912.38	912.64	912.55	912.30	912.30	911.94
19	910.97	911.37	910.84	911.23	910.07	911.75	912.35	912.59	912.53	912.30	912.24	911.98
20	910.98	911.35	910.77	911.26	910.14	911.79	912.33	912.54	912.53	912.29	912.20	912.01
21	910.99	911.31	910.71	911.28	910.20	911.84	912.32	912.52	912.48	912.30	912.16	912.03
22	911.01	911.30	910.65	911.30	910.26	911.88	912.30	912.49	912.47	912.29	912.14	912.05
23	910.99	911.28	910.62	911.32	910.32	911.96	912.30	912.44	912.44	912.29	912.11	912.07
24	911.00	911.25	910.57	911.33	910.38	912.02	912.30	912.46	912.41	912.30	912.10	912.12
25	911.02	911.22	910.52	911.35	910.44	912.07	912.30	912.46	912.40	912.32	912.07	912.15
26	911.01	911.23	910.48	911.36	910.50	912.10	912.33	912.49	912.37	912.36	912.07	912.17
27	911.00	911.20	910.46	911.37	910.55	912.15	912.37	912.47	912.32	912.39	912.05	912.18
28	911.00	911.20	910.41	911.35	910.62	912.18	912.39	912.47	912.30	912.45	912.02	912.16
29	911.01	911.20	910.38	911.24	----	912.22	912.40	912.46	912.28	912.47	912.02	912.11
30	910.99	911.20	910.34	911.14	----	912.24	912.41	912.43	912.25	912.50	912.00	912.08
31	910.98	----	910.30	911.06	----	912.27	----	912.39	----	912.54	911.98	----
MEAN	910.97	911.32	910.87	910.90	910.36	911.55	912.39	912.65	912.43	912.29	912.36	912.01
MAX	911.02	911.46	911.19	911.37	910.95	912.27	912.50	912.90	912.55	912.54	912.64	912.18
MIN	910.83	911.00	910.30	910.29	909.93	910.70	912.30	912.39	912.25	912.20	911.98	911.91

CAL YR 1976 MEAN 911.04 MAX 911.89 MIN 909.70
WTR YR 1977 MEAN 911.60 MAX 912.90 MIN 909.93

12439150 OKANOGAN RIVER AT BRIDGE STREET, AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°56'20", long 119°25'56", in SW¼NW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 15 ft (5 m) upstream from Cherry Street bridge in Oroville, 700 ft (215 m) upstream from Tonasket Creek, 1.0 mi (1.6 km) downstream from Osoyoos Lake, and at mile 78.0 (125.5 km).

DRAINAGE AREA.--3,133 mi² (8,114 km²).

WATER-ELEVATION RECORDS

PERIOD OF RECORD.--October 1942 to September 1964 (annual maximum and minimum gage heights only published in WSP 1933), October 1964 to current year (gage heights only). April 1930 to November 1944 (fragmentary) and December 1944 to September 1964 gage heights available in file of district office.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Nov. 14, 1944, nonrecording gage and Nov. 15, 1944 to Sept. 30, 1945, water-stage recorder at present site at datum 897.61 ft (273.592 m) higher and Oct. 1, 1945 to Sept. 30, 1975, at datum 900.00 ft (274.320 m) higher. To convert to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation recorded, 916.00 ft (279.200 m) June 2, 1972; minimum recorded, 907.30 ft (276.545 m) Mar. 3, 4, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 912.91 ft (278.255 m) May 9; minimum, 909.66 ft (277.264 m), Feb. 14.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	910.74	910.87	910.83	910.16	910.77	910.60	912.29	912.30	912.36	912.19	912.57	911.92
2	910.70	910.95	910.83	910.28	910.68	910.74	912.29	912.41	912.37	912.20	912.59	911.91
3	910.65	911.07	910.83	910.29	910.58	910.80	912.31	912.57	912.36	912.20	912.62	911.90
4	910.63	911.12	910.81	910.42	910.51	910.86	912.34	912.72	912.35	912.18	912.63	911.92
5	910.72	911.07	910.76	910.47	910.42	910.91	912.36	912.79	912.36	912.17	912.62	911.96
6	910.76	911.07	910.77	910.55	910.35	910.96	912.36	912.84	912.36	912.18	912.62	911.97
7	910.79	911.09	910.77	910.61	910.27	911.00	912.39	912.84	912.37	912.18	912.62	911.97
8	910.82	911.13	910.79	910.68	910.20	911.05	912.39	912.85	912.45	912.17	912.63	911.96
9	910.84	911.19	910.81	910.74	910.10	911.13	912.42	912.86	912.43	912.23	912.63	911.94
10	910.86	911.19	910.81	910.79	910.01	911.21	912.42	912.83	912.42	912.18	912.59	911.93
11	910.87	911.15	910.81	910.85	909.92	911.22	912.44	912.84	912.42	912.19	912.[illegible]6	911.92
12	910.88	911.16	910.81	910.90	909.83	911.30	912.42	912.86	912.43	912.19	912.54	911.88
13	910.91	911.16	910.81	910.95	909.74	911.30	912.45	912.84	912.45	912.18	912.52	911.88
14	910.89	911.15	910.77	910.99	909.79	911.41	912.41	912.82	912.47	912.20	912.50	911.91
15	910.85	911.16	910.66	911.03	909.85	911.49	912.38	912.76	912.48	912.22	912.43	911.88
16	910.86	911.14	910.79	911.07	909.88	911.56	912.39	912.72	912.49	912.24	912.37	911.88
17	910.86	911.07	910.73	911.09	909.94	911.61	912.37	912.70	912.50	912.26	912.32	911.88
18	910.86	911.05	910.69	911.14	909.99	911.67	912.36	912.61	912.51	912.30	912.27	911.91
19	910.85	911.02	910.61	911.18	910.06	911.73	912.33	912.57	912.49	912.30	912.22	911.94
20	910.86	911.01	910.57	911.21	910.12	911.77	912.31	912.51	912.50	912.2[illegible]	912.18	911.97
21	910.87	910.96	910.58	911.23	910.19	911.82	912.29	912.50	912.44	912.29	912.14	912.00
22	910.89	910.95	910.52	911.25	910.25	911.86	912.27	912.45	912.44	912.29	912.12	912.01
23	910.87	910.92	910.48	911.26	910.31	911.93	912.28	912.48	912.40	912.29	912.08	912.03
24	910.87	910.90	910.42	911.28	910.36	911.99	912.27	912.40	912.37	912.29	912.07	912.08
25	910.89	910.89	910.37	911.29	910.41	912.04	912.27	912.41	912.37	912.31	912.04	912.11
26	910.89	910.90	910.32	911.30	910.48	912.08	912.30	912.44	912.34	912.34	912.04	912.12
27	910.87	910.84	910.30	911.31	910.53	912.14	912.35	912.45	912.29	912.38	912.01	912.12
28	910.87	910.84	910.26	911.24	910.60	912.17	912.37	912.44	912.27	912.43	911.98	912.08
29	910.88	910.84	910.22	911.07	---	912.20	912.37	912.44	912.25	912.46	911.99	912.05
30	910.85	910.85	910.20	910.96	---	912.20	912.30	912.39	912.21	912.48	911.98	912.01
31	910.84	---	910.15	910.86	---	912.26	---	912.36	---	912.53	911.94	---
MEAN	910.83	911.02	910.61	910.92	910.22	911.52	912.35	912.61	912.40	912.27	912.36	911.97
MAX	910.91	911.19	910.83	911.31	910.77	912.26	912.45	912.86	912.51	912.53	912.63	912.12
MIN	910.63	910.84	910.15	910.16	909.74	910.60	912.27	912.36	912.21	912.17	911.94	911.88

CAL YR 1976 MEAN 910.77 MAX 911.43 MIN 909.52
WTR YR 1977 MEAN 911.60 MAX 912.86 MIN 909.74

12439150 OKANOGAN RIVER AT BRIDGE STREET AT OROVILLE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-1970, 1975-76, Aug. 30 to Aug. 31, 1977.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1959 to September 1960.
pH: July 1959 to September 1960.
WATER TEMPERATURE: July 1959 to September 1960.

REMARKS.--Records collected at same site prior to October 1970 was published as 12439500 "Okanogan River at Oroville."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance, and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, AUGUST 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)
AUG										
30...	0805	292	295	8.1	20.0	1	8.1	91	--	--
30...	1100	293	275	8.1	20.4	--	7.7	87	--	--
30...	1400	290	260	8.2	20.8	1	8.4	95	--	--
30...	1700	286	250	8.2	21.2	--	8.9	102	--	--
30...	2010	286	290	8.2	20.6	--	9.1	103	--	--
30...	2305	281	300	8.3	20.4	--	9.6	106	B170	B100
31...	0200	281	300	8.4	20.0	--	9.1	101	--	--
31...	0500	281	300	8.2	19.4	--	8.6	95	B170	84
31...	0800	281	320	8.2	19.4	--	8.2	90	--	--
31...	1100	281	305	8.5	19.8	--	8.3	92	--	--

B Results based upon colony counts outside the ideal range.

DATE	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)
AUG										
30...	130	32	35	10	10	2.8	118	0	97	1.5
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	118	0	97	1.2
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
AUG										
30...	40	2.4	.2	3.8	162	.01	.03	.28	.02	.00
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	.01	.03	.28	.02	.00
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

OKANOGAN RIVER BASIN

12439300 TONASKET CREEK AT OROVILLE, WA

LOCATION.--Lat 48°56'35", long 119°24'45", in NW¼NE¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank 7 ft (2.1 m) downstream from road bridge, 1.0 mi (1.6 km) northeast of Oroville, and 0.7 mi (1.1 km) above mouth.

DRAINAGE AREA.--60.1 mi^2 (155.7 km^2).

PERIOD OF RECORD.--March 1967 to current year.

REVISED RECORDS.--WRD Wash. 1973: 1972(M).

GAGE.--Water-stage recorder. Altitude of gage is 960 ft (293 m), from topographic map.

REMARKS.--Records poor. No gage-height record Jan. 5 to Feb. 19, Aug. 25 to Sept. 30. Two small diversions for irrigation of 45 acres (182,000 m^2) above station.

AVERAGE DISCHARGE.--10 years, 2.69 ft^3/s (0.0762 m^3/s) 0.61 in/yr (15 mm/yr), 1,950 acre-ft/yr (2.40 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 455 ft^3/s (12.9 m^3/s) Feb. 27, 1973, gage height, 5.47 ft (1.667 m), from rating curve extended above 50 ft^3/s (1.42 m^3/s) on basis of slope-area measurement of peak flow; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 30 ft^3/s (0.850 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 4	1445	*9.5	0.27	2.66	0.811
Sept. 25	unknown	----	----	*3.54	1.079

Minimum discharge, no flow Nov. 9, 10, Jan. 1 to Feb. 20, Feb. 26 to Mar. 1, June 25, 26, 29, 30, July 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	.03	.05	.00	.00	.00	.95	.33	.86	.00	.30	.20
2	1.6	.03	.05	.00	.00	.02	.86	.52	1.3	.12	.32	.20
3	1.5	.02	.05	.00	.00	.13	1.2	2.3	.95	.25	.20	.20
4	1.3	.01	.05	.00	.00	.17	5.1	3.5	1.0	.30	.17	.20
5	.86	.01	.05	.00	.00	.15	7.0	2.9	1.2	.38	.38	.20
6	.57	.01	.05	.00	.00	.25	5.6	2.2	.79	.34	.40	.40
7	.40	.01	.13	.00	.00	.30	4.5	1.8	.52	.32	.43	.40
8	.17	.01	.15	.00	.00	.79	4.3	1.7	.30	.30	.40	.40
9	.07	.00	.20	.00	.00	.62	4.5	1.4	.23	.38	.22	.40
10	.02	.00	.25	.00	.00	.52	4.0	1.4	.11	.50	.34	.40
11	.04	.01	.25	.00	.00	.44	3.1	2.2	.11	.53	.36	.60
12	.05	.02	.20	.00	.00	.48	2.3	2.0	.11	.34	.53	.60
13	.05	.03	.20	.00	.00	.44	2.5	1.5	.73	.24	.62	.60
14	.15	.02	.20	.00	.00	.40	2.3	1.3	.36	.28	.56	.60
15	.17	.02	.20	.00	.00	.44	1.7	.95	.30	.26	.62	.60
16	.17	.02	.20	.00	.00	.57	1.3	1.8	.17	.34	.50	1.0
17	.17	.01	.15	.00	.00	.62	1.4	1.8	.13	.28	.40	1.0
18	.15	.02	.15	.00	.00	.48	1.8	1.7	.09	.43	.32	1.0
19	.15	.03	.10	.00	.00	.57	2.0	1.5	.06	.40	.38	1.0
20	.11	.04	.10	.00	.00	.52	1.4	1.3	.01	.30	.38	1.0
21	.04	.05	.15	.00	.06	.52	1.3	.95	.17	.24	.40	1.4
22	.05	.05	.20	.00	.11	.73	1.2	.86	.13	.28	.32	1.4
23	.11	.07	.10	.00	.11	1.0	.86	.95	.13	.40	.32	1.4
24	.11	.07	.05	.00	.05	1.2	.86	2.3	.06	.30	.22	1.4
25	.17	.07	.05	.00	.01	.95	.79	2.3	.00	.32	.06	1.4
26	.11	.05	.05	.00	.00	1.0	.86	1.8	.00	.22	.20	1.4
27	.06	.05	.03	.00	.00	.86	.86	1.5	.05	.18	.50	1.4
28	.05	.05	.03	.00	.00	.73	.73	1.0	.01	.26	.40	1.4
29	.05	.05	.02	.00	---	.79	.62	.86	.00	.30	.30	1.4
30	.04	.05	.01	.00	---	.79	.57	.62	.00	.38	.20	1.4
31	.04	---	.01	.00	---	.86	---	.62	---	.26	.20	---
TOTAL	10.73	.91	3.48	.00	.34	17.34	66.46	47.86	9.88	9.41	11.03	25.00
MEAN	.35	.030	.11	.000	.012	.56	2.22	1.54	.33	.30	.36	.83
MAX	2.0	.07	.25	.00	.11	1.2	7.0	3.5	1.3	.53	.62	1.4
MIN	.02	.00	.01	.00	.00	.00	.57	.33	.00	.00	.06	.20
CFSM	.006	.000	.002	.000	.000	.009	.04	.03	.005	.005	.006	.01
IN.	.01	.00	.00	.00	.00	.01	.04	.03	.01	.01	.01	.02
AC-FT	21	1.8	6.9	.00	.7	34	132	95	20	19	22	50

CAL YR 1976 TOTAL 887.03 MEAN 2.42 MAX 37 MIN .00 CFSM .04 IN .55 AC-FT 1760
WTR YR 1977 TOTAL 202.44 MEAN .55 MAX 7.0 MIN .00 CFSM .009 IN .13 AC-FT 402

12439400 OKANOGAN RIVER AT ZOSEL MILLPOND, AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°55'55", long 119°25'05", in SE¼SW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 0.4 mi (0.6 km) downstream from Tonasket Creek, 1.6 mi (2.6 km) downstream from Osoyoos Lake and at mile 77.41 (124.55 km).

DRAINAGE AREA.--3,195 mi² (8,275 km²).

PERIOD OF RECORD.--October 1942 to September 1964 (annual maximum and minimum gage heights only, published in WSP 1933), October 1964 to current year (gage heights only). April 1939 to March 1944 (fragmentary) and April 1944 to September 1964 gage heights available in file of district office.

REVISED RECORDS.--WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Mar. 27, 1944, nonrecording gage and Mar. 28, 1944 to Sept. 30, 1945 water-stage recorder at present site at datum 897.61 ft (273.592 m) higher and Oct. 1, 1945 to Sept. 30, 1975, at datum 900.00 ft (274.320 m) higher. To convert to Geodetic Survey of Canada 1934 datum, subtract 1.63 ft (0.497 m); to convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.079 m).

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD.--Maximum elevation recorded, 916.91 ft (279.474 m) June 2, 1972; minimum recorded, 905.90 ft (276.118 m) Jan. 3, 1959, but may have been lower during period of no gage-height record Mar. 3 or 4, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 912.86 ft (278.240 m) May 6; minimum, 909.28 ft (277.149 m) Feb. 14.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	910.47	910.74	910.28	910.05	910.55	910.67	912.27	912.37	912.32	912.17	912.53	911.90
2	---	910.81	910.27	910.25	910.46	910.72	912.27	912.41	912.34	912.19	912.55	911.89
3	---	910.92	910.27	910.26	910.36	910.79	912.29	912.55	912.33	912.19	912.60	911.89
4	---	910.89	910.26	910.40	910.26	910.85	912.32	912.68	912.32	912.17	912.59	911.90
5	---	910.69	910.22	910.44	910.17	910.88	912.34	912.76	912.33	912.17	912.58	911.94
6	---	910.72	910.21	910.52	910.09	910.93	912.34	912.81	912.33	912.17	912.59	911.95
7	---	910.71	910.21	910.59	910.01	910.96	912.37	912.80	912.36	912.17	912.59	911.95
8	---	910.76	910.27	910.64	909.92	911.03	912.38	912.81	912.44	912.16	912.60	911.94
9	---	910.81	910.30	910.67	909.80	911.10	912.41	912.81	912.41	912.21	912.61	911.92
10	---	910.83	910.31	910.67	909.69	911.19	912.41	912.78	912.40	912.17	912.57	911.91
11	---	910.79	910.31	910.67	909.60	911.21	912.44	912.79	912.39	912.18	912.53	911.89
12	---	910.81	910.31	910.76	909.49	911.28	912.41	912.81	912.40	912.18	912.51	911.87
13	---	910.79	910.31	910.92	909.38	911.36	912.42	912.79	912.42	912.16	912.50	911.86
14	---	910.77	910.27	910.80	909.61	911.39	912.37	912.77	912.45	912.18	912.49	911.88
15	---	910.78	910.12	910.39	909.78	911.46	912.35	912.71	912.45	912.20	912.40	911.85
16	---	910.74	910.29	911.02	909.83	911.54	912.37	912.67	912.47	912.22	912.34	911.86
17	---	910.56	910.40	911.06	909.91	911.59	912.34	912.65	912.48	912.23	912.29	911.85
18	---	910.53	910.36	911.11	909.98	911.64	912.33	912.55	912.48	912.27	912.25	911.88
19	---	910.50	910.28	911.14	910.05	911.70	912.30	912.52	912.45	912.28	912.19	911.90
20	910.72	910.49	910.30	911.16	910.10	911.74	912.29	912.48	912.47	912.25	912.16	911.93
21	910.73	910.43	910.42	911.19	910.16	911.79	912.26	912.47	912.42	912.26	912.12	911.96
22	910.76	910.41	910.35	911.21	910.23	911.83	912.25	912.42	912.40	912.25	912.09	911.97
23	910.72	910.39	910.31	911.23	910.29	911.91	912.25	912.37	912.37	912.26	912.06	911.99
24	910.72	910.36	910.24	911.24	910.35	911.97	912.25	912.39	912.34	912.26	912.05	912.03
25	910.74	910.35	910.19	911.25	910.39	912.02	912.25	912.39	912.34	912.28	912.01	912.07
26	910.74	910.36	910.13	911.27	910.46	912.05	912.26	912.42	912.31	912.31	912.01	912.08
27	910.72	910.30	910.11	911.28	910.51	912.11	912.33	912.41	912.27	912.34	911.99	912.06
28	910.72	910.29	910.06	911.11	910.59	912.15	912.35	912.39	912.24	912.41	911.95	912.00
29	910.74	910.29	910.02	910.89	---	912.19	912.36	912.39	912.24	912.43	911.96	911.96
30	910.71	910.29	909.99	910.78	---	912.20	912.37	912.36	912.20	912.46	911.95	911.93
31	910.69	---	909.94	910.67	---	912.22	---	912.33	---	912.49	911.91	---
MEAN	---	910.60	910.24	910.82	910.07	911.50	912.33	912.58	912.37	912.25	912.31	911.93
MAX	---	910.92	910.42	911.28	910.59	912.22	912.44	912.81	912.48	912.49	912.61	912.08
MIN	---	910.29	909.94	910.05	909.38	910.67	912.25	912.33	912.20	912.16	911.91	911.85

12439500 OKANOGAN RIVER AT OROVILLE, WA
(International gaging station)

LOCATION.--Lat 48°55'51", long 119°25'09", in SE¼SW¼ sec.27, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on left bank in Oroville, 20 ft (6 m) downstream from Burlington Northern trestle, 0.5 mi (0.8 km) downstream from Tonasket Creek, 1.7 mi (2.7 km) downstream from Osoyoos Lake, 3.2 mi (5.1 km) upstream from Similkameen River, and at mile 77.3 (124.4 km).

DRAINAGE AREA.--3,195 mi² (8,275 km²).

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WRD WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 900.00 ft (274.320 m), above mean sea level. Prior to Oct. 26, 1944, nonrecording gage at Zosel milldam 200 ft (61 m) upstream at same datum. Oct. 26, 1944, to Mar. 6, 1948, water-stage recorder on railroad trestle 20 ft (6 m) upstream at same datum. Auxiliary water-stage recorder 0.5 mi (0.8 km) downstream used during high-water periods since Apr. 10, 1948. May 15, 1946, to Apr. 9, 1948, auxiliary nonrecording gage at same site and datum. To convert to 1947 joint adjustment of U.S. Coast and Geodetic Survey and Geodetic Survey of Canada, subtract 0.26 ft (0.074 m).

REMARKS.--Records excellent. Diversions made to irrigate approximately 44,000 acres (17,800 hm²) in Canada and minor diversions in the United States above station. Natural regulation in several large lakes and artificial regulation in Okanagan Lake 46.7 mi (75.1 km) upstream for flood control and irrigation; also regulated by Zosel milldam at Oroville, 200 ft (61 m) above gage.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--35 years, 671 ft³/s (19.00 m³/s), 486,100 acre-ft/yr (599 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,730 ft³/s (106 m³/s) June 14, 1972; maximum gage height, 16.89 ft (5.148 m) June 2, 1972 (backwater from Similkameen River); minimum daily discharge, 2,270 ft³/s (64.3 m³/s) reverse flow May 29, 1948; minimum gage height, 3.98 ft (1.213 m) Mar. 1, 1948.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,180 ft³/s (33.4 m³/s) Nov. 16, gage height, 7.66 ft (2.335 m); no flow for part of Jan. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	754	574	1060	338	700	71	147	299	305	156	121	279
2	748	586	1060	217	684	73	150	312	311	139	129	277
3	736	616	1060	221	668	73	155	363	302	141	135	281
4	670	766	1050	148	657	72	164	445	295	138	133	286
5	556	1010	1040	237	643	70	187	482	331	137	136	293
6	568	1010	1040	244	630	70	221	493	282	140	153	297
7	568	1010	1030	249	615	70	231	487	187	151	155	300
8	574	1020	1010	255	600	73	243	489	211	149	174	295
9	574	1040	1010	262	589	72	253	548	192	147	198	291
10	580	1050	1010	269	566	66	253	556	191	158	218	294
11	580	1030	1010	282	544	56	277	557	196	139	226	290
12	580	1040	1010	291	516	55	286	558	191	134	221	285
13	586	1040	1010	299	499	55	292	604	194	130	219	298
14	580	1030	1000	308	350	54	279	631	205	130	218	313
15	574	1040	958	314	281	58	273	597	216	131	277	303
16	574	1070	832	320	220	60	282	580	219	128	308	305
17	574	1150	772	329	157	62	272	563	224	127	292	305
18	568	1140	766	342	111	63	269	496	240	122	283	315
19	568	1130	742	350	74	64	259	445	253	117	273	323
20	568	1120	634	356	75	67	257	378	229	114	270	332
21	574	1110	525	362	73	66	254	343	222	111	260	341
22	580	1100	520	368	74	63	253	347	218	110	254	350
23	574	1090	515	376	75	68	257	382	215	108	248	356
24	574	1080	510	379	75	72	262	360	208	107	262	373
25	574	1080	505	383	73	77	242	356	224	104	286	385
26	574	1080	500	386	73	82	245	362	238	104	293	389
27	574	1060	500	390	74	94	272	356	214	104	292	503
28	574	1060	495	602	74	101	282	353	197	113	286	575
29	574	1060	490	758	---	110	291	353	183	106	290	572
30	568	1060	485	735	---	123	294	343	181	110	290	558
31	568	---	480	716	---	136	---	318	---	113	281	---
TOTAL	18388	30252	24629	11086	9770	2296	7402	13756	6874	3918	7181	10362
MEAN	593	1008	794	358	349	74.1	247	444	229	126	232	345
MAX	754	1150	1060	758	700	136	294	631	331	158	308	575
MIN	556	574	480	148	73	54	147	299	181	104	121	277
AC-FT	36470	60000	48850	21990	19380	4550	14680	27290	13630	7770	14240	20550

CAL YR 1976 TOTAL 314598.00 MEAN 860 MAX 1710 MIN -100 AC-FT 624000
WTR YR 1977 TOTAL 145914.00 MEAN 400 MAX 1150 MIN 54 AC-FT 289400

12442500 SIMILKAMEEN RIVER NEAR NIGHTHAWK, WA
(International gaging station)

LOCATION.--Lat 48°59'05", long 119°37'02", in NW¼ sec.7, T.40 N., R.26 E., Okanogan County, Hydrologic Unit 17020007, on left bank 1,000 ft (305 m) upstream from Oroville-Tonasket Irrigation District canal intake, 1.6 mi (2.6 km) northeast of Nighthawk, 3.8 mi (6.1 km) downstream from Palmer Creek, and at mile 15.8 (25.4 km).

DRAINAGE AREA.--3,550 mi² (9,190 km²), approximately.

PERIOD OF RECORD.--May 1911 to current year (prior to September 1928, mean monthly discharge included Oroville-Tonasket Irrigation District canal). Published as "near Oroville" 1911-28. Water temperatures January 1949 to September 1950, November 1961 to September 1970, at site 1.7 mi (2.7 km) upstream.

REVISED RECORDS.--WSP 1183: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,137.70 ft (346.771 m) above mean sea level, international joint adjustment of 1947. Prior to Sept. 11, 1928, staff gages at sites 7 mi (11.3 km) downstream (below Oroville-Tonasket Irrigation District canal) at various datums.

REMARKS.--Records excellent. Flow at high stages regulated by natural diversion into and release from Palmer Lake. Several small diversions above station for irrigation of about 2,900 acres (1,170 hm²) in the United States in 1946 and approximately 10,500 acres (4,250 hm²) in Canada in 1957.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--66 years, 2,307 ft³/s (65.33 m³/s), 1,671,000 acre-ft/yr (2,060 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,800 ft³/s (1,300 m³/s) June 1, 1972; maximum gage height, 18.78 ft (5.724 m) May 31, 1972; minimum discharge, 65 ft³/s (1.84 m³/s) Jan. 3, 1974, gage height, 1.59 ft (0.485 m), result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,500 ft³/s (212 m³/s) June 8, gage height, 8.05 ft (2.454 m); minimum, 241 ft³/s (6.83 m³/s) Sept. 17, gage height, 1.89 ft (0.576 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	746	568	550	440	560	598	396	4740	3270	1590	626	373
2	734	568	517	380	550	586	400	5110	3700	1480	565	347
3	716	604	473	380	540	574	392	5830	3560	1410	525	327
4	716	574	456	320	530	556	384	5160	3420	1370	500	317
5	716	574	420	290	520	544	380	4290	3610	1350	470	314
6	710	604	400	290	539	539	443	3770	4180	1330	461	317
7	704	592	380	290	517	550	525	3540	5700	1270	430	317
8	704	574	490	285	512	562	702	3560	6960	1180	430	311
9	698	556	604	275	506	574	1050	3730	6150	1100	413	299
10	686	574	622	310	528	562	1220	3930	5070	1030	396	281
11	674	562	586	325	539	544	1200	4340	4570	993	380	273
12	668	539	562	320	539	534	1120	4170	4530	972	369	268
13	674	556	556	360	550	534	1060	3830	4700	972	358	260
14	656	528	528	415	640	556	1060	3640	4480	972	340	255
15	644	478	500	460	740	562	1040	3460	4270	931	327	250
16	632	440	512	495	733	556	986	3260	4170	877	317	246
17	620	512	580	517	733	520	993	3200	4060	838	311	246
18	615	634	733	544	733	512	993	3250	3780	832	289	246
19	600	934	733	719	719	506	965	3280	3650	842	284	250
20	595	761	592	1110	691	500	917	3330	3570	775	273	257
21	590	604	517	1030	677	462	877	3410	3430	727	265	276
22	591	517	468	944	670	425	858	3670	3080	690	265	290
23	598	528	539	896	652	425	871	3830	2890	650	268	302
24	592	592	592	796	634	430	1130	4200	2630	615	273	311
25	580	646	568	620	604	440	2100	4110	2390	598	279	311
26	574	691	544	610	598	430	4140	3980	2260	575	305	324
27	580	684	580	580	598	415	4990	3900	2100	555	330	330
28	580	517	705	578	610	415	4290	3670	1930	550	354	321
29	586	468	691	575	---	410	4170	3460	1800	626	354	317
30	580	517	550	560	---	400	4510	3310	1710	722	340	314
31	586	---	460	540	---	394	---	3140	---	722	351	---
TOTAL	19945	17416	17008	16254	16970	15623	44170	120020	111620	29144	11456	8850
MEAN	643	581	549	524	606	504	1472	3872	3721	940	370	295
MAX	746	934	733	1110	740	598	4990	5830	6960	1590	626	373
MIN	574	440	380	275	506	394	384	3140	1710	550	265	246
AC-FT	39560	34540	33740	32240	33660	30990	87610	238100	221400	57810	22720	17550

CAL YR 1976 TOTAL 1116140 MEAN 3050 MAX 16600 MIN 380 AC-FT 2214000
WTR YR 1977 TOTAL 428476 MEAN 1174 MAX 6960 MIN 246 AC-FT 849900

12443600. Similkameen River at Oroville, Wash.

LOCATION.--Lat 48°56'05", long 119°26'27", in NE¼SW¼ sec.28, T.40 N., R.27 E., Okanogan County, Hydrologic Unit 17020007, at 12th Avenue bridge at Oroville, 10.0 mi (16.1 km) east of Nighthawk, 10.8 mi (17.4 km) downstream from gaging station, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--3,590 mi² (9,300 km²), approximately.

PERIOD OF RECORD.--Water years 1949-50, 1967-1970 (partial-record station), 1975-76, Aug. 30 to Aug. 31, 1977.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: January 1949 to September 1950, October 1966 to September 1970.

REMARKS.--Temperature records collected January 1949 to September 1950, October 1966 to September 1970 at county bridge 12.5 mi (20.1 km) upstream and 1.7 mi (2.7 km) upstream from gaging station, published as 12442500 "near Nighthawk."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance, and coliform data furnished by the Washington State Department of Ecology.

WATER QUALITY DATA, AUGUST 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM .7UM-MF (COL./ 100 ML)
AUG										
30...	0830	214	205	8.0	16.4	0	9.5	99	--	--
30...	1110	215	200	7.8	17.4	--	9.5	101	--	--
30...	1410	215	200	8.0	18.4	0	9.7	105	--	--
30...	1710	21[illegible]	185	8.0	18.3	--	9.7	105	--	--
30...	2020	210	200	8.1	17.3	--	9.2	97	B190	B4
30...	2315	210	220	8.2	17.0	--	9.3	98	--	--
31...	0215	204	225	8.0	16.0	--	9.0	92	B43	B2
31...	0510	207	205	8.0	16.0	--	9.1	94	--	--
31...	0815	205	210	7.9	16.2	--	9.3	96	--	--
31...	1115	204	210	8.1	17.1	--	9.6	101	--	--

B Results based upon colony counts outside the ideal range.

DATE	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)
AUG										
30...	98	7	30	5.5	4.8	1.5	110	0	90	1.8
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)
AUG										
30...	22	1.1	.1	11	130	.01	.01	.06	.01	.00
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	.01	.03	.14	.01	.00
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

12444700 AENEAS LAKE NEAR TONASKET, WA

LOCATION.--Lat 48°40'37", long 119°30'28", in SE¼NW¼ sec.25, T.37 N., R.26 E., Okanogan County, Hydrologic Unit 17020006, at boat launching ramp on east shore 4.0 mi (6.4 km) southwest of Tonasket.

DRAINAGE AREA.--32.4 mi² (83.9 km²).

PERIOD OF RECORD.--February 1964 to current year (fragmentary).

GAGE.--Nonrecording gage. Altitude of gage is 1,390 ft (424 m), from topographic map. Prior to Mar. 28, 1968, nonrecording gage on west shore, Mar. 28, 1968 to Nov. 28, 1972, nonrecording gage at present site, and Nov. 28, 1972 to Apr. 6, 1974 water-stage recorder 500 ft (150 m) northeast of present site, all at present datum.

REMARKS.--Pumping from lake and nearby ground-water wells during irrigation season. Diversion from Okanogan River into lake by pumping during irrigation season beginning June 1970.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 11.78 ft (3.590 m) Oct. 21, 1976; minimum observed, -10.68 ft (-3.255 m) Oct. 10, 16, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 11.78 ft (3.590 m) Oct. 21; minimum, 7.45 ft (2.271 m) Aug. 29.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	11.27	---	---	11.07	---	---	7.55
3	---	---	---	10.90	10.76	---	---	---	---	---	8.65	---
4	---	11.50	---	---	---	---	---	10.90	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	10.90	---	11.24	11.13	---	11.40	9.45	---	7.83
7	---	---	---	---	---	---	---	---	---	---	8.59	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	10.90	---	---	---	10.29	---	9.17	---	---
10	---	---	---	---	---	11.23	---	---	---	---	---	---
11	---	---	---	---	---	---	---	11.25	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	10.90	---	---	10.95	---	10.85	9.15	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	11.23	10.95	---	---	---	---	---
16	---	---	10.90	---	---	---	---	9.89	10.89	---	---	---
17	---	---	---	---	---	---	---	---	---	9.17	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	11.03	9.85	10.45	9.13	---	---
20	---	---	---	---	---	---	10.89	---	---	---	---	---
21	11.78	---	10.90	---	---	---	10.89	---	---	---	---	---
22	---	---	---	---	---	11.22	---	---	---	---	---	---
23	---	---	---	---	---	---	11.25	---	---	---	---	---
24	---	---	---	---	---	---	---	10.09	---	9.01	---	---
25	---	---	---	---	---	---	---	---	---	---	7.60	---
26	---	---	---	---	---	---	---	---	9.65	---	---	---
27	---	---	---	---	---	---	11.25	10.13	---	---	---	---
28	---	---	---	---	---	---	---	---	---	8.87	---	---
29	---	---	---	---	---	---	---	---	---	---	7.45	---
30	---	---	---	---	---	11.15	11.10	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

12445000 OKANOGAN RIVER NEAR TONASKET, WA

LOCATION.--Lat 48°37'57", long 119°27'38", in lot 3, sec.8, T.36 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, on right bank 1,000 ft (305 m) upstream from Chewiliken Creek, 5.2 mi (8.4 km) south of Tonasket, and at mile 50.8 (81.7 km).

DRAINAGE AREA.--7,260 mi² (18,000 km²), approximately.

PERIOD OF RECORD.--April 1929 to current year.

REVISED RECORDS.--WSP 862: 1937. WSP 1316: 1934(M), 1938(M). WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 860.78 ft (262.366 m) above mean sea level.

REMARKS.--Records good. Diversions above station for irrigation of about 10,700 acres (43 km²) in the United States and 55,000 acres (220 km²) in Canada. Flow affected by regulation of Okanagan and Skaha Lakes and by natural storage in other lakes.

AVERAGE DISCHARGE.--48 years, 2,964 ft³/s (83.94 m³/s), 2,147,000 acre-ft/yr (2,650 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 44,700 ft³/s (1,270 m³/s) June 2, 1972, gage height, 22.54 ft (6.870 m); minimum recorded, 126 ft³/s (3.57 m) Sept. 5, 1931, gage height, 3.43 ft (1.045 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,860 ft³/s (194 m³/s) June 9, gage height, 9.80 ft (2.987 m); minimum, 378 ft³/s (10.7 m³/s) Aug. 23, 24, gage height, 3.77 ft (1.149 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1610	1330	1750	1080	1410	627	646	4530	3530	1820	709	505
2	1590	1320	1750	718	1400	640	639	4790	3880	1670	622	530
3	1570	1360	1720	632	1360	640	645	5410	4060	1570	561	515
4	1550	1410	1670	620	1350	635	643	5490	3890	1510	530	505
5	1430	1640	1650	580	1310	630	624	4810	3850	1470	515	520
6	1380	1720	1610	600	1280	625	652	4360	4190	1430	487	510
7	1370	1720	1600	600	1250	625	720	4060	4840	1390	487	505
8	1380	1720	1570	610	1220	630	797	3950	6190	1310	476	510
9	1380	1730	1680	610	1210	635	962	4080	6450	1210	472	500
10	1370	1740	1760	620	1200	640	1270	4240	5330	1140	482	490
11	1350	1740	1770	680	1200	630	1410	4640	4780	1080	484	480
12	1340	1720	1730	625	1180	620	1380	4750	4560	1010	471	470
13	1330	1710	1720	700	1150	610	1320	4400	4710	984	452	470
14	1340	1670	1710	750	1120	615	1250	4270	4630	987	431	485
15	1310	1660	1650	820	1030	625	1240	4070	4450	979	410	495
16	1300	1640	1590	874	1070	630	1210	3860	4260	926	473	485
17	1280	1700	1670	904	994	625	1140	3740	4240	875	477	495
18	1270	1820	1550	959	950	615	1150	3740	4060	837	457	500
19	1270	1990	1630	1000	898	610	1130	3680	3930	816	433	520
20	1270	2150	1580	1100	868	605	1070	3680	3770	815	412	550
21	1250	2010	1290	1500	844	600	1020	3670	3700	779	403	582
22	1260	1890	1180	1490	832	605	992	3820	3640	715	405	610
23	1270	1820	1160	1420	791	610	957	4120	3190	675	389	642
24	1290	1840	1210	1370	703	615	981	4360	2900	633	383	676
25	1300	1870	1250	1250	683	620	1400	4520	2740	681	406	700
26	1310	1870	1190	1150	675	625	2910	4320	2570	575	450	706
27	1310	1900	1180	1100	671	630	4730	4280	2420	549	480	730
28	1320	1790	1220	1150	635	630	4470	4170	2240	531	505	886
29	1310	1720	1320	1450	---	635	4120	3950	2060	533	530	919
30	1310	1680	1290	1470	---	640	4320	3780	1930	612	530	911
31	1320	---	1190	1430	---	643	---	3610	---	723	505	---
TOTAL	41940	51880	46640	29842	29293	19365	45798	131150	116880	30755	14825	17402
MEAN	1353	1729	1505	963	1046	625	1527	4231	3896	992	478	580
MAX	1610	2150	1770	1500	1410	643	4730	5490	6450	1820	709	919
MIN	1250	1320	1160	580	635	600	624	3610	1930	531	383	470
AC-FT	83190	102900	92510	59190	58100	38410	90840	260100	231800	61000	29410	34520

CAL YR 1976 TOTAL 1410810 MEAN 3855 MAX 15500 MIN 1160 AC-FT 2798000
WTR YR 1977 TOTAL 575770 MEAN 1577 MAX 6450 MIN 383 AC-FT 1142000

12445900 OMAK CREEK NEAR OMAK, WA

LOCATION.--Lat 48°22'02", long 119°26'38", in NE¼NW¼ sec.16, T.33 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, Colville Indian Reservation, on right bank downstream wingwall of county highway bridge, 1.3 mi (2.1 km) upstream from Mission Creek, and 3.9 mi (6.3 km) southeast of Omak.

DRAINAGE AREA.--119 mi² (308 km²).

PERIOD OF RECORD.--March 1972 to March 1974, September 1977 to current year. Chemical analyses March 1972 to February 1973.

GAGE.--Water-stage recorder. Altitude of gage is 1,220 ft (372 m), from topographic map.

REMARKS.--Records good except those for December and January, which are fair. No known regulation. Many small diversions for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 319 ft³/s (9.03 m³/s) Feb. 25, 1973, gage height, 3.14 ft (0.957 m); maximum gage height, unknown, exceeded 4.5 ft (1.37 m) during period of backwater from ice Jan. 1-16, 1974; no flow Aug. 19-23, 1977.

EXTREMES FOR CURRENT PERIOD.--July to September 1976: Maximum daily discharge during period, 16 ft³/s (0.45 m³/s) Aug. 7; minimum daily, 2.2 ft³/s (0.062 m³/s) July 27.
Water year 1977: Maximum daily discharge, 20 ft³/s (0.57 m³/s) June 5; no flow Aug. 19-23.

DISCHARGE, IN CUBIC FEET PER SECOND, 1976

Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.	Day	July	Aug.	Sept.
1	---	4.3	3.7	9	---	7.2	4.3	17	---	7.4	3.7	25	2.7	7.2	4.0
2	---	4.6	3.4	10	---	5.4	4.2	18	---	6.6	3.5	26	2.4	9.7	4.1
3	---	4.8	3.3	11	---	4.4	3.9	19	---	5.3	3.3	27	2.2	7.0	4.0
4	---	4.0	3.6	12	---	3.7	3.9	20	---	5.1	3.2	28	2.9	5.9	3.4
5	---	4.2	3.8	13	---	3.4	4.1	21	---	4.7	3.2	29	3.4	5.2	3.3
6	---	7.0	4.1	14	---	3.9	3.9	22	3.4	4.3	3.1	30	4.5	4.7	3.3
7	---	16	4.7	15	---	5.8	3.8	23	3.4	4.0	3.2	31	4.8	4.1	---
8	---	11	4.4	16	---	6.5	3.8	24	3.0	3.9	3.5				
TOTAL													---	181.3	111.7
MEAN													---	5.85	3.72
MAX													---	16	4.7
MIN													---	3.4	3.1
AC-FT													---	360	222

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.5	6.0	4.5	3.7	5.3	6.6	7.0	4.2	6.6	1.1	.76	.48
2	3.6	5.8	4.8	3.4	5.1	6.3	7.0	4.8	15	.97	.67	.58
3	3.7	5.5	5.1	4.0	5.1	6.3	7.0	8.7	11	.90	.63	.58
4	3.9	5.5	5.5	4.5	5.3	6.3	8.2	14	13	.97	.59	.58
5	4.0	5.8	5.1	4.0	5.5	5.9	9.2	9.7	20	1.3	.63	.53
6	4.2	5.7	4.8	3.7	5.5	6.6	9.7	6.6	13	1.7	.68	.58
7	4.1	5.1	5.5	3.4	5.1	7.6	9.7	6.3	9.2	1.1	.76	.48
8	4.2	5.2	6.3	3.0	4.8	10	9.7	6.6	8.2	1.0	.73	.43
9	4.1	5.1	5.5	3.7	4.2	8.7	11	6.3	7.0	.97	.59	.38
10	4.2	5.5	4.5	4.2	4.8	7.4	9.2	5.5	6.3	.90	.60	.34
11	4.1	5.5	4.0	4.2	6.6	6.3	7.8	8.2	5.1	.83	.69	.34
12	4.0	4.5	3.5	4.5	7.0	6.6	7.6	7.6	5.0	.70	.45	.34
13	4.5	4.8	3.7	4.5	7.0	7.4	7.0	5.9	9.2	.70	.21	.30
14	4.3	7.0	4.0	4.8	6.3	5.9	7.0	5.1	9.7	.58	.21	.30
15	4.4	6.6	4.2	4.5	5.9	6.6	7.0	4.8	8.2	.76	.17	.30
16	4.6	7.4	4.5	5.1	5.9	6.0	6.6	4.8	8.2	.83	.07	.30
17	4.2	7.0	4.2	5.5	6.3	6.3	6.6	4.8	7.8	.58	.04	.48
18	4.4	6.6	4.0	5.9	5.9	5.9	6.3	4.8	5.9	.58	.02	.66
19	4.5	3.7	3.7	5.1	6.3	6.6	5.5	4.8	6.8	.86	.00	.90
20	4.8	5.1	3.7	4.8	6.6	6.3	5.1	4.5	6.2	.80	.00	1.3
21	5.5	5.1	4.2	5.1	6.6	6.6	5.1	4.2	4.0	.70	.00	1.5
22	5.0	7.0	4.0	4.8	6.6	7.6	5.1	4.0	3.6	.73	.00	1.5
23	5.1	5.9	4.5	4.8	6.3	10	5.5	4.5	3.0	.63	.00	1.5
24	5.0	6.3	4.2	4.8	7.0	11	5.5	7.6	3.0	.56	.11	1.8
25	6.1	6.3	4.5	4.5	7.0	8.7	5.9	9.2	2.5	.55	.53	3.2
26	6.5	6.0	4.2	4.8	7.8	8.2	6.6	7.0	2.3	.59	1.1	3.0
27	5.8	4.5	4.0	4.8	5.9	7.8	5.9	6.3	2.2	.67	1.1	2.5
28	5.7	3.5	4.2	4.8	5.9	7.0	5.1	5.5	2.0	.67	.97	3.0
29	5.6	4.5	4.5	4.8	---	7.0	4.8	5.1	1.8	.61	.48	3.0
30	5.5	5.0	4.7	4.8	---	6.6	4.8	5.1	1.3	.66	.48	3.2
31	5.4	---	4.2	5.1	---	7.0	---	4.8	---	.72	.48	---
TOTAL	144.5	167.5	139.1	139.6	168.8	223.3	208.3	190.9	203.8	25.31	13.39	34.36
MEAN	4.66	5.58	4.49	4.50	6.03	7.20	6.94	6.16	6.79	.82	.43	1.15
MAX	6.5	7.4	6.3	5.9	7.8	11	11	14	20	1.7	1.1	3.2
MIN	3.5	3.5	3.5	3.0	4.2	5.9	4.8	4.0	1.3	.55	.00	.30
AC-FT	287	332	276	277	335	443	413	379	404	50	27	68

WTR YR 1977 TOTAL 1650.86 MEAN 4.54 MAX 20 MIN .00 AC-FT 3290

12445939 NO NAME CREEK NEAR SOURCE, NEAR OMAK, WA

LOCATION.--Lat 48°21'12", long 119°26'33", in SE¼SW¼ sec.16, T.33 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, Colville Indian Reservation, 0.25 mi (0.40 km) north of Walton's residence, and 5.4 mi (8.7 km) southeast of Omak.

PERIOD OF RECORD.--August 1976 to September 1977.

GAGE.--Water-stage recorder. Datum of gage is 1,148.40 ft (350.032 m) above mean sea level.

REMARKS.--Records good. Discharge affected by pumpage from nearby wells.

EXTREMES FOR CURRENT PERIOD.--August to September 1976: Maximum daily discharge, 2.2 ft^3/s (0.062 m^3/s) Sept. 13; no flow Aug. 1-5, 14, 15.
Water year 1977: Maximum discharge, 2.3 ft^3/s (0.065 m^3/s) Oct. 3, 4, 5, gage height, 0.82 ft (0.250 m); no flow Oct. 6 to Apr. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, 1976

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	0	1.3	7	.89	1.9	13	.88	2.2	19	2.0	2.0	25	2.0	1.9
2	0	1.9	8	.84	1.8	14	0	2.0	20	2.0	2.0	26	2.0	2.1
3	0	1.9	9	.84	1.8	15	0	1.9	21	.65	1.9	27	1.9	2.0
4	0	1.9	10	.35	1.9	16	1.0	1.9	22	1.2	1.9	28	2.0	1.9
5	0	2.0	11	1.7	1.9	17	2.0	1.8	23	2.0	1.9	29	2.0	1.9
6	.22	2.1	12	2.0	2.1	18	1.8	1.9	24	2.1	1.9	30	1.9	1.9
												31	1.5	---
TOTAL													35.77	57.5
MEAN													1.15	1.92
MAX													2.1	2.2
MIN													0	1.3
AC-FT													71	114

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	.00	.00	.00	.00	.00	.00	1.8	1.7	1.3	1.6	1.5
2	2.1	.00	.00	.00	.00	.00	.00	1.8	1.7	1.1	1.5	1.9
3	2.2	.00	.00	.00	.00	.00	.00	1.9	1.7	1.9	1.5	1.7
4	2.3	.00	.00	.00	.00	.00	.00	1.9	1.7	1.9	1.4	1.5
5	1.0	.00	.00	.00	.00	.00	.00	1.9	1.7	1.9	1.4	1.7
6	.00	.00	.00	.00	.00	.00	.08	1.9	1.7	1.9	1.4	1.8
7	.00	.00	.00	.00	.00	.00	.01	1.9	1.7	1.9	1.4	1.7
8	.00	.00	.00	.00	.00	.00	.52	1.9	1.4	1.9	1.7	1.7
9	.00	.00	.00	.00	.00	.00	1.2	1.8	1.1	1.8	1.9	1.7
10	.00	.00	.00	.00	.00	.00	1.2	1.8	1.8	1.8	1.9	1.7
11	.00	.00	.00	.00	.00	.00	1.2	1.8	1.8	1.5	1.8	1.7
12	.00	.00	.00	.00	.00	.00	1.2	1.8	1.2	1.1	1.7	1.7
13	.00	.00	.00	.00	.00	.00	1.2	1.7	1.2	1.3	1.8	1.6
14	.00	.00	.00	.00	.00	.00	1.1	1.6	1.9	1.7	1.8	1.7
15	.00	.00	.00	.00	.00	.00	1.3	.77	1.9	1.7	1.8	1.7
16	.00	.00	.00	.00	.00	.00	1.3	1.3	1.9	1.6	1.7	1.7
17	.00	.00	.00	.00	.00	.00	1.2	1.8	1.9	1.6	1.7	1.7
18	.00	.00	.00	.00	.00	.00	1.2	1.8	1.9	1.6	1.8	1.7
19	.00	.00	.00	.00	.00	.00	1.0	1.7	1.9	1.6	1.8	1.7
20	.00	.00	.00	.00	.00	.00	1.2	1.7	1.9	1.6	1.8	1.7
21	.00	.00	.00	.00	.00	.00	1.2	1.7	1.9	1.5	1.8	1.7
22	.00	.00	.00	.00	.00	.00	1.1	1.7	1.9	1.5	1.6	1.7
23	.00	.00	.00	.00	.00	.00	1.1	1.5	1.9	1.4	1.4	1.7
24	.00	.00	.00	.00	.00	.00	1.2	1.3	1.9	1.4	1.3	1.3
25	.00	.00	.00	.00	.00	.00	1.1	1.5	2.0	1.2	1.5	1.0
26	.00	.00	.00	.00	.00	.00	1.3	1.8	2.0	1.4	1.5	1.0
27	.00	.00	.00	.00	.00	.00	1.8	1.8	2.0	1.6	1.5	1.0
28	.00	.00	.00	.00	.00	.00	1.8	1.7	2.0	1.6	1.4	1.0
29	.00	.00	.00	.00	---	.00	1.9	1.7	2.0	1.6	1.4	1.0
30	.00	.00	.00	.00	---	.00	1.8	1.7	1.8	1.6	1.4	1.0
31	.00	---	.00	.00	---	.00	---	1.7	---	1.6	1.4	---
TOTAL	9.60	.00	.00	.00	.00	.00	29.21	52.67	53.1	49.1	49.6	46.2
MEAN	.31	.000	.000	.000	.000	.000	.97	1.70	1.77	1.58	1.60	1.54
MAX	2.3	.00	.00	.00	.00	.00	1.9	1.9	2.0	1.9	1.9	1.9
MIN	.00	.00	.00	.00	.00	.00	.00	.77	1.1	1.1	1.3	1.0
AC-FT	19	.00	.00	.00	.00	.00	58	104	105	97	98	92

WTR YR 1977 TOTAL 289.40 MEAN .79 MAX 2.3 MIN .00 AC-FT 574

12445940 NO NAME CREEK DIVERSION NEAR OMAK, WA

LOCATION.--Lat 48°20'43", long 119°26'06", in NE¼SW¼ sec.21, T.33 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, Colville Indian Reservation, 8.2 mi (13.2 km) southeast of Omak.

PERIOD OF RECORD.--August 1976 to September 1977.

GAGE.--Water-stage recorder. Datum of gage is 1,109.76 ft (338.255 m) above mean sea level, levels of Nov. 16-18, 1976.

REMARKS.--Records good. Discharge represents water diverted from No Name Creek to a holding pond.

EXTREMES FOR CURRENT PERIOD.--August to September 1976: Maximum daily discharge, 0.65 ft³/s (0.018 m³/s); no flow Aug. 14, 15, Sept. 11, 12, 15-30.

Water year 1977: Maximum discharge, 0.89 ft³/s (0.025 m³/s) Apr. 27, 28, gage height, 0.45 ft (0.137 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, 1976

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	---	.19	7	---	.34	13	.34	.02	19	.59	0	25	.46	0
2	---	.29	8	---	.27	14	0	.01	20	.61	0	26	.54	0
3	---	.45	9	.57	.22	15	0	0	21	.32	0	27	.27	0
4	---	.44	10	.27	.11	16	.24	0	22	.22	0	28	.28	0
5	---	.48	11	.45	0	17	.65	0	23	.62	0	29	.28	0
6	---	.51	12	.45	0	18	.51	0	24	.62	0	30	.21	0
												31	.22	---
TOTAL													---	3.33
MEAN													---	.11
MAX													---	.51
MIN													---	0
AC-FT													---	6.6

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.62	.00	.53	.55	.37
2	.00	.00	.00	.00	.00	.00	.00	.68	.00	.31	.62	.64
3	.00	.00	.00	.00	.00	.00	.00	.73	.00	.71	.21	.55
4	.00	.00	.00	.00	.00	.00	.00	.73	.00	.68	.00	.62
5	.00	.00	.00	.00	.00	.00	.00	.73	.00	.71	.00	.68
6	.00	.00	.00	.00	.00	.00	.00	.73	.00	.66	.00	.62
7	.00	.00	.00	.00	.00	.00	.00	.73	.00	.62	.00	.55
8	.00	.00	.00	.00	.00	.00	.00	.73	.00	.64	.13	.30
9	.00	.00	.00	.00	.00	.00	.00	.68	.00	.66	.32	.62
10	.00	.00	.00	.00	.00	.00	.00	.62	.00	.66	.35	.39
11	.00	.00	.00	.00	.00	.00	.00	.66	.00	.53	.19	.66
12	.00	.00	.00	.00	.00	.00	.00	.12	.00	.35	.19	.50
13	.00	.00	.00	.00	.00	.00	.00	.23	.30	.53	.21	.53
14	.00	.00	.00	.00	.00	.00	.00	.00	.73	.62	.21	.53
15	.00	.00	.00	.00	.00	.00	.00	.00	.73	.66	.32	.55
16	.00	.00	.00	.00	.00	.00	.00	.00	.68	.62	.66	.55
17	.00	.00	.00	.00	.00	.00	.00	.00	.66	.66	.60	.53
18	.00	.00	.00	.00	.00	.00	.00	.00	.68	.37	.50	.66
19	.00	.00	.00	.00	.00	.00	.00	.00	.68	.35	.55	.60
20	.00	.00	.00	.00	.00	.00	.00	.00	.68	.37	.64	.66
21	.00	.00	.00	.00	.00	.00	.13	.00	.66	.32	.80	.66
22	.00	.00	.00	.00	.00	.00	.48	.00	.68	.44	.73	.66
23	.00	.00	.00	.00	.00	.00	.50	.00	.73	.39	.50	.50
24	.00	.00	.00	.00	.00	.00	.55	.00	.71	.39	.42	.30
25	.00	.00	.00	.00	.00	.00	.53	.00	.71	.35	.40	.00
26	.00	.00	.00	.00	.00	.00	.68	.00	.71	.50	.37	.00
27	.00	.00	.00	.00	.00	.00	.78	.00	.71	.60	.35	.00
28	.00	.00	.00	.00	.00	.00	.86	.00	.73	.46	.35	.00
29	.00	.00	.00	.00	---	.00	.82	.00	.71	.50	.28	.00
30	.00	.00	.00	.00	---	.00	.71	.00	.64	.53	.28	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.53	.32	---
TOTAL	.00	.00	.00	.00	.00	.00	6.04	7.77	12.13	15.63	10.50	11.52
MEAN	.000	.000	.000	.000	.000	.000	.20	.25	.40	.50	.34	.38
MAX	.00	.00	.00	.00	.00	.00	.86	.73	.73	.71	.80	.68
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.31	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	12	15	24	31	21	23

WTR YR 1977 TOTAL 63.68 MEAN .17 MAX .86 MIN .00 AC-FT 126

12445941 NO NAME CREEK BELOW DIVERSION, NEAR OMAK, WA.

LOCATION.--Lat 48°20'44", long 119°26'29", in NE¼SW¼ sec.21, T.33 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, Colville Indian Reservation, below Walton's headgate and diversion and 5.7 mi (9.2 km) southeast of Omak.

PERIOD OF RECORD.--July 1976 to September 1977.

GAGE.--Water-stage recorder. Datum of gage is 1,107.37 ft (337.55 m) above mean sea level, levels of Nov. 16-18, 1976.

REMARKS.--Records good. Discharge affected by pumpage from nearby wells.

EXTREMES FOR CURRENT PERIOD.--July to September 1976: Maximum daily discharge, 2.2 ft³/s Sept. 12-14; minimum daily, 0.01 ft³/s (<0.001 m³/s) July 29 to Aug. 5.

Water year 1977: Maximum discharge, 2.5 ft³/s (0.071 m³/s) May 13, gage height, 0.96 ft (0.293 m); minimum daily, 0.22 ft³/s (0.006 m³/s) Oct. 15, 17-18.

DISCHARGE, IN CUBIC FEET PER SECOND, 1976

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	July	Aug.	Sept.
1	.01	1.2	7	.70	1.8	13	1.5	2.2	19	1.7	2.0	25	---	2.0	2.0
2	.01	1.8	8	.66	1.8	14	.49	2.2	20	1.7	2.0	26	---	2.0	2.1
3	.01	1.7	9	.68	1.8	15	.44	2.0	21	1.2	1.9	27	---	1.8	2.1
4	.01	1.7	10	.65	2.0	16	.81	1.9	22	1.8	1.9	28	---	2.0	1.9
5	.01	1.8	11	1.3	2.0	17	1.5	1.9	23	1.7	2.0	29	.01	2.1	1.9
6	.25	1.8	12	1.8	2.2	18	1.3	1.9	24	1.9	2.0	30	.01	2.0	1.9
												31	.01	1.8	---
TOTAL													---	35.23	57.4
MEAN													---	1.14	1.91
MAX													---	2.1	2.2
MIN													---	.01	1.2
AC-FT													---	70	114

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	.27	.31	.36	.42	.56	.56	1.6	1.8	.99	.86	1.2
2	2.1	.27	.31	.36	.65	.56	.56	1.6	1.7	.56	.90	1.3
3	2.2	.27	.31	.36	.42	.56	.56	1.3	1.7	1.1	1.1	1.3
4	2.2	.27	.31	.36	.42	.51	.56	1.3	1.7	1.1	1.2	1.2
5	1.6	.27	.31	.39	.65	.60	.56	1.3	1.7	1.1	1.2	1.2
6	.26	.29	.31	.36	.65	.60	.56	1.3	1.7	1.1	1.2	1.2
7	.27	.29	.36	.36	.65	.56	.59	1.3	1.7	1.1	1.2	1.3
8	.27	.29	.36	.32	.60	.56	.96	1.3	1.6	1.1	1.3	1.3
9	.27	.29	.39	.32	.54	.59	1.6	1.3	1.1	1.1	1.3	1.3
10	.26	.29	.39	.32	.65	.56	1.5	1.6	1.7	1.1	1.3	1.3
11	.26	.29	.39	.36	.42	.56	1.5	1.6	1.4	.96	1.3	1.3
12	.26	.29	.39	.36	.42	.56	1.5	1.7	1.5	.76	1.3	1.3
13	.26	.29	.42	.36	.54	.56	1.5	1.7	.60	.71	1.3	1.3
14	.26	.29	.42	.36	.54	.56	1.5	1.7	1.1	.93	1.3	1.3
15	.22	.31	.42	.36	.54	.59	1.6	1.2	1.2	1.1	1.2	1.2
16	.26	.31	.42	.29	.51	.59	1.7	1.2	1.3	1.1	1.4	1.2
17	.22	.31	.36	.42	.51	.56	1.6	1.8	1.3	1.0	1.4	1.2
18	.22	.31	.42	.45	.51	.56	1.6	1.8	1.3	1.1	1.3	1.3
19	.26	.31	.42	.42	.51	.56	1.6	1.7	1.3	1.1	1.3	1.2
20	.26	.31	.42	.40	.51	.56	1.5	1.7	1.3	1.1	1.3	1.2
21	.26	.31	.42	.40	.54	.56	1.3	1.8	1.3	1.1	1.4	1.2
22	.26	.31	.42	.40	.54	.56	1.0	1.7	1.2	.93	1.3	1.1
23	.26	.31	.42	.40	.51	.56	1.0	1.7	1.2	.87	1.2	1.1
24	.27	.31	.42	.40	.51	.56	1.0	1.6	1.2	.86	1.1	1.1
25	.27	.31	.42	.40	.51	.56	.93	1.6	1.2	.81	1.1	.90
26	.27	.31	.42	.40	.51	.56	.87	1.8	1.2	.50	1.1	.93
27	.27	.31	.39	.40	.51	.56	1.1	1.8	1.2	.86	1.1	.95
28	.27	.31	.39	.41	.50	.56	.93	1.7	1.2	.96	1.0	.88
29	.27	.29	.39	.41	---	.56	1.1	1.7	1.2	.93	.99	.87
30	.27	.31	.42	.45	---	.54	1.3	1.7	1.1	.93	.99	.87
31	.27	---	.39	.40	---	.54	---	1.7	---	.87	.99	---
TOTAL	16.66	8.90	11.96	11.67	14.36	17.08	33.92	48.0	41.10	29.86	36.97	35.03
MEAN	.54	.30	.39	.38	.51	.55	1.13	1.55	1.37	.96	1.19	1.17
MAX	2.2	.31	.42	.45	.65	.59	1.7	1.8	1.8	1.1	1.4	1.3
MIN	.22	.27	.31	.32	.42	.48	.56	1.2	.60	.50	.86	.87
AC-FT	33	18	24	23	28	34	67	95	82	59	73	69

WTR YR 1977 TOTAL 305.37 MEAN .84 MAX 2.2 MIN .22 AC-FT 606

12445942 NO NAME CREEK DIVERSION RETURN NEAR OMAK, WA

LOCATION.--Lat 48°20'23", long 119°26'24", in NE¼SW¼ sec.21, T.33 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, Colville Indian reservation, 350 ft (107 m) northwest of holding pond and 5.7 mi (9.2 km) southeast of Omak.

PERIOD OF RECORD.--August 1976 to September 1977.

GAGE.--Water-stage recorder. Datum of gage is 1,096.00 ft (334.06 m) above mean sea level, levels of Nov. 16-18, 1976.

REMARKS.--Records good. Discharge represents return flow from holding pond back to No Name Creek.

EXTREMES FOR CURRENT PERIOD.--August to September 1976: Maximum discharge, 0.56 ft^3/s (0.016 m^3/s) Aug. 19, gage height, 2.53 ft (0.771 m); minimum daily, 0.01 ft^3/s (<0.001 m^3/s) Aug. 16.

Water year 1977: Maximum discharge, 0.12 ft^3/s (0.003 m^3/s) Apr. 30, gage height, 2.35 ft (0.716 m); no flow for most of the period Jan. 12 to Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, 1976

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	---	.20	7	---	.37	13	---	.08	19	.44	.04	25	.30	.04
2	---	.19	8	---	.31	14	---	.08	20	.51	.04	26	.46	.04
3	---	.30	9	---	.29	15	---	.05	21	.47	.04	27	.40	.05
4	---	.36	10	---	.29	16	.01	.05	22	.25	.04	28	.33	.04
5	---	.37	11	---	.15	17	.02	.05	23	.37	.04	29	.31	.05
6	---	.39	12	---	.08	18	.25	.05	24	.47	.04	30	.30	.04
												31	.27	---

	Aug.	Sept.
TOTAL	---	4.16
MEAN	---	.14
MAX	---	.39
MIN	---	.04
AC-FT	---	8.3

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.05	.05	.02	.04	.00	.01	.00	.00	.00	.00	.00	.00
2	.04	.05	.02	.04	.00	.01	.00	.00	.00	.00	.00	.00
3	.04	.05	.02	.04	.00	.00	.00	.00	.00	.00	.00	.00
4	.04	.05	.02	.03	.00	.00	.00	.00	.00	.00	.00	.00
5	.06	.05	.02	.03	.00	.00	.00	.00	.00	.00	.00	.00
6	.05	.04	.02	.03	.00	.00	.00	.00	.00	.00	.00	.00
7	.05	.03	.02	.03	.00	.00	.00	.00	.00	.00	.00	.00
8	.04	.02	.02	.02	.00	.00	.00	.00	.00	.00	.00	.00
9	.04	.02	.02	.02	.00	.00	.00	.00	.00	.00	.00	.00
10	.03	.01	.02	.02	.01	.00	.00	.00	.00	.00	.00	.00
11	.02	.01	.02	.01	.01	.00	.00	.00	.00	.00	.00	.00
12	.01	.01	.03	.00	.02	.01	.00	.00	.00	.00	.00	.00
13	.01	.01	.03	.00	.02	.01	.00	.00	.00	.00	.00	.00
14	.01	.01	.03	.00	.02	.01	.00	.00	.00	.00	.00	.00
15	.01	.01	.03	.00	.02	.01	.00	.00	.00	.00	.00	.00
16	.02	.01	.03	.00	.02	.01	.00	.00	.00	.00	.00	.00
17	.01	.01	.03	.00	.02	.01	.01	.00	.00	.00	.00	.00
18	.02	.01	.04	.00	.02	.01	.01	.00	.00	.00	.00	.00
19	.04	.01	.04	.01	.02	.00	.00	.00	.00	.00	.00	.00
20	.05	.01	.04	.01	.02	.00	.00	.00	.00	.00	.00	.00
21	.04	.02	.04	.01	.02	.00	.00	.00	.00	.00	.00	.00
22	.05	.02	.04	.01	.01	.00	.02	.00	.00	.00	.00	.00
23	.05	.02	.04	.01	.01	.00	.05	.00	.00	.00	.00	.00
24	.05	.02	.04	.01	.01	.00	.01	.00	.00	.00	.00	.00
25	.05	.02	.04	.01	.01	.00	.00	.00	.00	.00	.00	.00
26	.05	.01	.04	.01	.01	.00	.01	.00	.00	.00	.00	.00
27	.05	.01	.04	.00	.01	.00	.03	.00	.00	.00	.00	.00
28	.05	.01	.04	.00	.01	.00	.09	.00	.00	.00	.00	.00
29	.05	.01	.04	.00	---	.00	.11	.00	.00	.00	.00	.00
30	.05	.02	.04	.00	---	.00	.08	.00	.00	.00	.00	.00
31	.05	---	.04	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	1.18	.63	.96	.40	.28	.09	.42	.00	.00	.00	.00	.00
MEAN	.038	.021	.031	.013	.010	.003	.014	.000	.000	.000	.000	.000
MAX	.06	.05	.04	.04	.02	.01	.11	.00	.00	.00	.00	.00
MIN	.01	.01	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	2.3	1.2	1.9	.8	.6	.2	.8	.00	.00	.00	.00	.00

WTR YR 1977 TOTAL 3.96 MEAN .011 MAX .11 MIN .00 AC-FT 7.9

12445944 NO NAME CREEK AT GRANITE LIP, NEAR OMAK, WA

LOCATION.--Lat 48°19'46", long 119°26'06", in NW¼SE¼ sec.28, T.33 N., R.27 E., Okanogan County, Hydrologic Unit 17020006, Colville Indian Reservation, 9.4 mi (15.1 km) southeast of Omak.

PERIOD OF RECORD.--August 1976 to September 1977.

GAGE.--Water-stage recorders. Datum of gage is 1,022.71 ft (311.722 m) above mean sea level, levels of Nov. 16-18, 1976.

REMARKS.--Records good. Discharge affected by pumpage from nearby wells.

EXTREMES FOR CURRENT PERIOD.--August to September 1976: Maximum discharge, 2.9 ft³/s (0.082 m³/s) Aug. 25, gage height, 1.77 ft (0.539 m); minimum daily discharge, 0.01 ft³/s (<0.001 m³/s) Aug. 5, 6.
Water year 1977: Maximum daily discharge, 2.0 ft³/s (0.057 m³/s) Oct. 4; maximum gage height, 1.70 ft (0.518 m³/s) Oct. 4, 5; minimum daily discharge, 0.12 ft³/s (0.003 m³/s) Oct. 12, Jan. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, 1976

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	---	1.2	7	.84	2.2	13	2.0	2.4	19	2.1	1.8	25	2.5	1.7
2	---	1.8	8	.53	2.0	14	.44	2.4	20	2.2	1.9	26	2.4	1.8
3	---	1.9	9	.69	2.0	15	.45	2.0	21	1.8	1.8	27	2.3	1.9
4	---	1.9	10	.66	2.0	16	.59	2.0	22	.89	1.7	28	2.3	1.6
5	.01	2.0	11	1.0	2.3	17	2.0	1.9	23	2.0	1.9	29	2.3	1.7
6	.01	2.2	12	1.8	2.3	18	2.1	1.8	24	2.1	1.8	30	2.2	1.6
												31	1.9	---

	Aug.	Sept.
TOTAL	---	57.4
MEAN	---	1.91
MAX	---	2.4
MIN	---	1.2
AC-FT	---	114

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	.24	.22	.20	.30	.95	.70	1.1	1.0	.88	.76	.76
2	1.8	.22	.22	.18	.30	.86	.67	1.3	1.4	.37	.77	.99
3	1.9	.24	.22	.18	.31	.80	.67	1.2	1.6	.91	.77	.91
4	2.0	.24	.21	.20	.32	.85	.66	1.3	1.6	.95	.76	.77
5	1.7	.24	.21	.19	.33	.77	.61	1.3	1.6	.95	.67	.76
6	.22	.26	.20	.14	.36	.77	.61	1.3	1.3	1.0	.80	.91
7	.15	.25	.21	.13	.36	.77	.64	1.3	1.3	1.0	.84	1.0
8	.14	.27	.23	.12	.38	.77	.83	1.2	1.4	1.0	.90	1.1
9	.13	.25	.24	.14	.40	.76	1.5	1.2	.77	1.4	.91	1.1
10	.13	.25	.24	.15	.45	.76	1.5	1.3	1.5	1.4	.95	1.1
11	.13	.24	.22	.17	.52	.76	1.5	1.4	1.5	1.3	.95	1.0
12	.12	.22	.22	.14	.85	.80	1.4	1.7	1.4	.67	.98	.77
13	.14	.24	.22	.21	.95	.80	1.4	1.4	.67	.55	.98	.80
14	.14	.24	.24	.23	.52	.80	1.4	1.4	.80	.70	1.0	.80
15	.14	.24	.25	.25	.55	.88	1.5	.98	1.3	.99	1.0	.76
16	.14	.22	.27	.27	.58	.95	1.5	.70	1.2	.91	.80	.77
17	.14	.25	.54	.29	.61	.88	1.4	1.4	1.1	.91	.80	.77
18	.18	.25	.76	.35	.61	.88	1.4	1.5	1.2	.98	.80	.84
19	.19	.24	.25	.33	.64	.89	1.2	1.4	1.1	.98	.80	1.0
20	.18	.24	.25	.31	.64	.77	1.4	1.4	1.1	.98	.80	1.0
21	.18	.24	.28	.33	.67	.77	1.1	1.5	1.1	.95	.91	1.0
22	.18	.24	.28	.32	.70	.77	.84	1.4	1.1	.77	.88	1.0
23	.18	.24	.27	.31	.67	.80	.88	1.7	.80	.76	.77	1.1
24	.19	.25	.27	.30	.67	.77	.77	1.3	.80	.67	.76	1.1
25	.22	.24	.26	.28	.67	.76	.70	1.3	1.0	.76	.70	.76
26	.21	.21	.25	.29	.67	.77	.52	1.4	1.0	.50	.77	.64
27	.21	.21	.24	.30	.70	.77	.88	1.4	1.0	.67	.76	.61
28	.22	.21	.25	.30	.98	.76	.88	1.4	1.0	.86	.76	.64
29	.21	.22	.25	.29	---	.74	1.0	1.4	1.0	.80	.70	.64
30	.21	.22	.26	.29	---	.56	1.0	1.3	.95	.80	.67	.67
31	.22	---	.23	.30	---	.70	---	1.3	---	.77	.64	---
TOTAL	13.60	7.10	8.20	7.47	15.80	24.56	31.01	41.30	34.72	27.07	25.18	25.99
MEAN	.44	.24	.26	.24	.56	.79	1.03	1.34	1.16	.87	.81	.87
MAX	2.0	.27	.76	.35	.98	.95	1.5	1.7	1.5	1.4	1.0	1.1
MIN	.12	.21	.20	.12	.30	.70	.52	.70	.67	.37	.64	.61
AC-FT	27	14	16	15	31	49	62	82	69	54	50	52

WTR YR 1977 TOTAL 261.30 MEAN .72 MAX 2.0 MIN .12 AC-FT 518

12447200 OKANOGAN RIVER AT MALOTT, WA

LOCATION.--Lat 48°16'53", long 119°42'12", in SW¼ sec.9, T.32 N., R.25 E., Okanogan County, Hydrologic Unit 17020006, on right bank 75 ft (23 m) upstream from highway bridge at Malott, 0.1 mi (0.2 km) upstream from Loup Loup Creek, and at mile 17.0 (27.4 km).

DRAINAGE AREA.--8,080 mi² (20,930 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1958 to current year. April 1958 to September 1965, published as "near Malott." Records published for both sites December 1965 to July 1967.

REVISED RECORDS.--WDR WA-75-1: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 790 ft (241 m), from topographic map. April 1958 to November 1965, water-stage recorder at site 3.9 mi (6.3 km) downstream at mean sea level datum.

REMARKS.--Records excellent except those for winter periods, which are fair. Diversions above station for irrigation of about 22,000 acres (89 km²) in the United States and 55,000 acres (220 km²) in Canada. Flow regulated by Okanagan and Skaha Lakes and by natural storage in other lakes.

AVERAGE DISCHARGE.--19 years, 3,1[illegible]/s (88.87 m³/s), 2,273,000 acre-ft/yr (2,800 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Ma[illegible]um discharge, 45,600 ft³/s (1,290 m³/s) June 3, 1972, gage height, 22.16 ft (6.754 m); minimum observed, 288 ft³/s (8.16 m³/s) Sept. 4, 1970, gage height, 2.03 ft (0.619 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,030 ft³/s (199 m³/s) June 9, gage height, 7.23 ft (2.204 m); minimum, 321 ft³/s (9.09 m³/s) Aug. 25, gage height, 2.24 ft (0.683 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1660	1370	1760	1200	1500	789	660	4540	3550	1820	654	474
2	1630	1360	1830	1000	1420	781	663	4780	3660	1710	634	459
3	1600	1350	1800	770	1430	767	663	5220	4080	1540	552	485
4	1570	1410	1770	730	1470	747	667	5820	4030	1460	501	481
5	1540	1480	1720	680	1450	729	663	5330	3870	1410	475	482
6	1420	1740	1700	650	1400	713	638	4670	4070	1360	459	488
7	1400	1760	1670	640	1360	704	676	4290	4530	1330	432	479
8	1400	1760	1640	660	1320	705	735	4050	5850	1270	428	467
9	1400	1770	1640	660	1300	720	816	4050	6780	1200	412	470
10	1400	1780	1790	670	1270	735	991	4250	5960	1100	405	463
11	1400	1790	1850	670	1240	731	1300	4540	5100	1020	415	442
12	1380	1780	1830	680	1210	707	1370	4900	4710	965	431	438
13	1370	1770	1800	680	1190	702	1360	4710	4700	908	415	434
14	1350	1760	1790	690	1160	681	1270	4400	4810	893	392	426
15	1360	1740	1760	750	1110	684	1220	4250	4590	898	372	449
16	1340	1720	1700	800	1060	717	1220	4020	4390	877	357	461
17	1330	1690	1610	860	1080	721	1170	3830	4270	828	413	456
18	1310	1800	1530	920	980	698	1120	3770	4190	782	437	470
19	1300	1900	1650	950	953	674	1120	3750	3990	744	412	507
20	1310	2150	1680	1140	900	658	1090	3710	3870	743	386	529
21	1300	2150	1570	1440	877	635	1040	3690	3710	728	373	557
22	1290	2020	1310	1780	856	647	997	3730	3590	692	363	591
23	1290	1920	1260	1740	842	634	983	4000	3260	639	361	629
24	1330	1890	1230	1550	828	638	966	4250	3040	592	351	670
25	1350	1910	1290	1450	810	634	1040	4570	2810	558	329	699
26	1340	1920	1290	1400	791	636	1740	4480	2580	543	377	719
27	1340	1940	1250	1300	768	668	3890	4320	2430	507	411	733
28	1350	1930	1240	1250	788	662	4850	4300	2270	482	438	773
29	1350	1830	1310	1270	---	646	4350	4090	2100	472	472	912
30	1350	1770	1370	1350	---	650	4260	3880	1930	468	500	940
31	1350	---	1330	1470	---	647	---	3700	---	545	499	---
TOTAL	43110	53160	48970	31800	31363	21460	43528	133890	118720	29084	13456	16583
MEAN	1391	1772	1580	1026	1120	692	1451	4319	3957	938	434	553
MAX	1660	2150	1850	1780	1500	789	4850	5820	6780	1820	654	940
MIN	1290	1350	1230	640	768	634	638	3690	1930	468	329	426
AC-FT	85510	105400	97130	63080	62210	42570	86340	265600	235500	57690	26690	32890

CAL YR 1976 TOTAL 1461330 MEAN 3993 MAX 15900 MIN 1230 AC-FT 2899000
WTR YR 1977 TOTAL 585124 MEAN 1603 MAX 6780 MIN 329 AC-FT 1161000

12447200 OKANOGAN RIVER AT MALOTT, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959-62, 1963-70 (partial-record station), 1972, 1975-76, Aug. 30 to Aug. 31, 1977.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: November 1969 to June 1971.

REMARKS.--Water years 1959 to 1963 published as 12447300 "near Brewster", 1964 to 1966 published as 12447300 "near Malott."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance, and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, AUGUST 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)
AUG										
30...	0800	495	361	7.0	17.5	0	8.3	88	--	--
30...	1100	504	361	7.6	18.5	--	8.6	93	--	--
30...	1345	504	359	7.8	19.4	0	9.5	105	--	--
30...	1700	496	351	7.8	20.7	--	9.9	112	--	--
30...	2000	512	350	7.6	20.2	--	10.0	112	B80	B100
30...	2320	512	350	8.0	19.1	--	9.6	105	--	--
31...	0215	504	348	7.9	18.5	--	9.1	94	B100	B100
31...	0545	504	353	7.8	17.6	--	8.3	83	--	--
31...	0800	496	360	7.7	17.6	--	8.1	86	--	--

B Results based upon colony counts outside the ideal range.

DATE	HARDNESS (CA,MG) (MG/L)	NON-CARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)
AUG										
30...	160	43	40	14	13	3.1	140	0	115	22
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
AUG										
30...	43	2.8	.2	8.1	193	.02	.04	.22	.06	.04
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	.02	.04	.14	.22	.19
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--
31...	--	--	--	--	--	--	--	--	--	--

12447390 ANDREWS CREEK NEAR MAZAMA, WA
(Hydrologic bench-mark station)

LOCATION.--Lat 48°49'23", long 120°08'41", in NE¼ sec.1, T.38 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, Okanogan National Forest, on left bank 50 ft (15 m) upstream from Blizzard Creek, 3.5 mi (5.6 km) upstream from mouth, and 20 mi (32 km) northeast of Mazama.

DRAINAGE AREA.--22.1 mi² (57.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1968 to current year.

REVISED RECORDS.--WDR WA-76-2: 1975:

GAGE.--Water-stage recorder. Altitude of gage is 4,300 ft (1,310 m), from topographic map.

REMARKS.--Records good. No regulation or diversion.

AVERAGE DISCHARGE.--9 years, 33.9 ft³/s (0.960 m³/s), 20.83 in/yr (529 mm/yr), 24,560 acre-ft/yr (30.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft³/s (31.7 m³/s) June 10, 1972, gage height, 4.00 ft (1.219 m) from rating curve extended above 440 ft³/s (12.5 m³/s); minimum, 1.2 ft³/s (0.034 m³/s) Nov. 4, 1968, Nov. 20, 1970, Apr. 7, 1975; minimum gage height, 0.27 ft (0.082 m) Mar. 25-29, Apr. 6, 7, 1975.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 6	2100	*165	4.67	*2.22	0.677

Minimum discharge, 1.6 ft³/s (0.045 m³/s) Jan. 18, 19, gage height, 0.31 ft (0.094 m).

REVISIONS.--Revised daily discharges, in cubic feet per second, for the water year 1976 are given below. These figures supersede those published in the report for 1976.

Day	Sept.	Day	Sept.	Day	Sept.	Day	Sept.	Day	Sept.
10	17	15	14	19	13	23	11	27	8.2
11	16	16	12	20	13	24	11	28	8.8
13	15	17	13	21	12	25	11	29	9.0
14	15	18	16	22	12	26	10	30	8.8

Date	Total	Mean	Max	Min	Per square mile	Runoff Inches	Runoff Acre-feet
September 1976	415.8	13.9	18	8.2	0.63	0.70	825
WTR YR 1976	14,079.0	38.5	290	3.5	1.74	23.70	27,930

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.2	6.9	4.3	2.7	2.2	2.4	2.4	53	49	21	6.7	5.0
2	8.4	6.4	4.3	2.7	2.2	2.3	2.4	74	47	20	7.7	4.7
3	8.2	6.8	3.7	2.9	2.4	2.3	2.7	60	45	20	7.4	5.0
4	7.9	6.5	3.7	2.9	2.2	2.3	3.3	44	57	20	7.1	6.4
5	7.9	6.5	3.3	2.7	2.1	2.4	4.1	37	65	20	6.9	5.9
6	7.9	6.2	3.3	2.6	2.1	2.4	5.1	34	96	19	7.0	4.5
7	7.9	6.4	3.7	2.6	2.1	2.4	7.0	34	121	17	6.8	4.5
8	7.9	6.4	3.9	2.6	2.2	2.5	8.3	35	96	17	6.4	4.1
9	7.7	6.6	3.9	2.6	2.2	2.5	9.2	38	75	16	5.9	3.9
10	7.4	6.6	3.9	2.6	2.2	2.4	8.3	45	67	16	5.0	3.9
11	7.4	6.4	3.9	2.4	2.2	2.4	7.0	45	66	16	4.5	3.7
12	6.4	5.2	3.7	2.2	2.4	2.5	6.5	37	66	16	5.4	3.5
13	5.4	4.3	3.5	2.4	2.6	2.4	6.4	36	68	15	5.2	3.5
14	6.6	3.9	3.3	2.4	2.6	2.4	6.1	34	61	13	5.0	3.1
15	6.9	5.4	3.3	2.4	2.6	2.4	5.5	31	57	14	4.7	1.9
16	6.4	6.1	3.3	2.4	2.6	2.5	4.1	31	53	13	4.5	2.6
17	6.1	6.4	3.3	2.4	2.6	2.4	4.8	31	50	13	4.1	2.9
18	6.1	5.4	3.3	2.4	2.6	2.4	5.3	32	47	12	4.1	3.5
19	6.6	4.3	3.1	2.6	2.5	2.4	5.0	34	44	11	3.9	8.8
20	6.9	3.7	3.1	2.4	2.5	2.4	5.1	39	47	9.3	3.7	11
21	6.6	5.2	2.9	2.4	2.5	2.5	5.3	46	40	11	3.7	7.4
22	6.9	4.1	2.9	2.4	2.4	2.5	5.8	52	37	10	3.5	6.1
23	6.6	4.3	2.7	2.4	2.4	2.6	8.4	56	33	9.7	3.7	6.4
24	6.9	4.3	2.7	2.4	2.4	2.4	17	48	31	9.3	5.0	6.4
25	6.9	4.1	2.7	2.4	2.4	2.4	39	43	30	9.2	4.7	6.1
26	6.9	3.5	2.7	2.4	2.4	2.4	44	45	27	9.1	8.8	6.1
27	7.2	4.1	2.7	2.4	2.3	2.4	35	41	26	8.7	7.7	5.9
28	7.2	4.1	2.7	2.4	2.4	2.4	35	38	25	10	6.1	5.9
29	6.9	4.5	2.7	2.2	---	2.4	42	38	23	11	6.9	6.1
30	6.1	4.3	2.7	2.2	---	2.4	45	37	21	9.3	5.9	5.9
31	7.2	---	2.7	2.2	---	2.4	---	40	---	8.7	4.3	---
TOTAL	219.6	158.9	101.9	76.7	66.3	74.9	385.1	1288	1570	424.3	172.3	154.7
MEAN	7.08	5.30	3.29	2.47	2.37	2.42	12.8	41.5	52.3	13.7	5.56	5.16
MAX	8.4	6.9	4.3	2.9	2.6	2.6	45	74	121	21	8.8	11
MIN	5.4	3.5	2.7	2.2	2.1	2.3	2.4	31	21	8.7	3.5	1.9
CFSM	.32	.24	.15	.11	.11	.11	.58	1.88	2.37	.62	.25	.23
IN.	.37	.27	.17	.13	.11	.13	.65	2.17	2.64	.71	.29	.26
AC-FT	436	315	202	152	132	149	764	2550	3110	842	342	307

CAL YR 1976 TOTAL 13835.4 MEAN 37.8 MAX 290 MIN 2.7 CFSM 1.71 IN 23.29 AC-FT 27440
WTR YR 1977 TOTAL 4692.7 MEAN 12.9 MAX 121 MIN 1.9 CFSM .58 IN 7.90 AC-FT 9310

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)
OCT												
06...	0930	8.0	34	7.6	5.0	11.1	10	1	34	--	22	1
NOV												
02...	0900	5.2	40	7.4	1.0	12.8	<1	<1	--	87	22	0
DEC												
02...	0850	3.9	43	7.6	.6	12.5	<1	<1	--	1	24	0
28...	1145	2.8	75	6.8	.6	13.4	<1	5	--	<1	24	0
JAN												
27...	0950	2.4	63	7.8	.3	12.2	<1	<1	--	<1	24	0
FEB												
24...	1015	2.3	50	7.6	.4	11.6	<1	<1	--	<1	25	0
MAR												
29...	1245	2.4	63	7.0	1.6	12.5	<1	<1	--	<1	26	0
APR												
27...	1515	34	32	7.1	3.2	11.4	14	<1	--	16	14	1
MAY												
25...	0745	41	25	6.8	1.5	11.1	5	--	--	3	11	0
JUN												
23...	1245	34	31	7.6	7.9	10.0	1	1	--	<1	12	0
JUL												
27...	0945	8.5	38	7.7	8.5	9.8	<1	<1	--	<1	20	0
SEP												
01...	1615	5.2	46	6.9	7.8	9.8	34	<1	--	28	22	0

DATE	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)
OCT												
06...	6.8	1.2	2.0	.5	26	21	1.0	4.4	.2	.1	12	45
NOV												
02...	6.8	1.2	2.2	.5	30	25	1.9	1.1	.1	.2	12	65
DEC												
02...	7.8	1.2	2.4	.5	37	30	1.5	1.6	.3	.1	10	46
28...	7.8	1.1	2.5	.5	32	26	8.1	2.9	.3	.1	12	53
JAN												
27...	8.0	1.0	2.5	.6	37	30	.9	3.9	.4	.1	11	43
FEB												
24...	8.1	1.1	2.4	.6	37	30	1.5	2.3	.3	.1	11	44
MAR												
29...	8.4	1.2	2.7	.6	34	28	5.4	2.2	.3	.0	11	51
APR												
27...	4.7	.6	1.2	.6	16	13	2.0	4.4	.5	.0	7.1	32
MAY												
25...	3.7	.4	1.1	.4	15	12	3.8	2.6	.3	.0	7.2	30
JUN												
23...	4.0	.4	1.3	.4	15	12	.6	3.1	.2	.1	8.4	22
JUL												
27...	6.5	.9	2.1	.5	28	23	.9	.2	.2	.0	10	31
SEP												
01...	7.2	.9	2.2	.7	31	25	6.2	3.1	.2	.1	11	27

B Results based upon colony counts outside the ideal range.

12447390 ANDREWS CREEK NEAR MAZAMA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
OCT												
05...	40	.06	.97	.00	--	--	--	--	.00	--	1	.02
NOV												
02...	39	.09	.91	--	--	--	--	--	.00	--	0	.00
DEC												
02...	42	.06	.46	.04	--	--	--	--	.00	--	1	.01
29...	43	.07	.40	.08	--	--	--	--	.00	--	--	--
JAN												
27...	46	.06	.28	.06	--	--	--	--	.00	--	1	.01
FEB												
24...	44	.06	.27	.08	--	--	--	--	.00	--	2	.01
MAR												
29...	43	.07	.33	.05	--	--	--	--	.01	--	1	.01
APR												
27...	27	.04	2.44	.01	.17	.03	.20	.21	.01	.00	1	.09
MAY												
25...	23	.04	3.32	.00	.02	.08	.10	.10	.00	.00	1	.11
JUN												
23...	25	.03	2.02	.00	.04	.04	.08	.08	.01	.00	1	.09
JUL												
27...	34	.04	.71	.00	.01	.05	.06	.06	.01	.00	4	.09
SEP												
01...	41	.04	.38	.01	.01	.01	.02	.03	.00	.00	3	.04

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
JAN							
27...	0950	0	0	<10	0	<10	2300
FEB							
24...	1015	0	0	<10	0	<10	40
JUN							
23...	1245	0	0	<10	0	<10	0

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	CYANIDE (CN) (MG/L)
JAN							
27...	<100	0	.0	0	<10	10	.00
FEB							
24...	<100	20	.1	0	<10	0	.00
JUN							
23...	<100	0	.0	1	<10	30	.00

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	TOTAL FILT-RABLE RESIDUE (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)	SUS-PENDED GROSS BETA AS CS-137 (PC/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS-PENDED GROSS BETA AS SR90 /Y90 (PC/L)	DIS-SOLVED RA-226 (RADON METHOD) (PC/L)	DIS-SOLVED URANIUM (U) (UG/L)
FEB											
24...	1015	43	<1	.7	<.4	1.1	<.4	.9	<.4	.04	.30

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	TOTAL PCB (UG/L)	POLY-CHLO-RINATED NAPH-THA-LENES (UG/L)	TOTAL ALDRIN (UG/L)	TOTAL CHLOR-DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI-AZINON (UG/L)	TOTAL DI-ELDRIN (UG/L)	TOTAL ENDO-SULFAN (UG/L)
JUN											
23...	1245	.0	.00	.00	.0	.00	.00	.00	.00	.00	.00

DATE	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)	TOTAL HEPTA-CHLOR (UG/L)	TOTAL HEPTA-CHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALA-THION (UG/L)	TOTAL METHYL PARA-THION (UG/L)	TOTAL METHYL TRI-THION (UG/L)	TOTAL PARA-THION (UG/L)	TOTAL TOX-APHENE (UG/L)	TOTAL TRI-THION (UG/L)
JUN											
23...	.00	.00	.00	.00	.00	.00	.00	.00	.00	0	.00

12448998 TWISP RIVER NEAR TWISP, WA

LOCATION.--Lat 48°22'12", long 120°08'51", in SE¼SE¼ sec.12, T.33 N., R.21 E., Okanogan County, Hydrologic Unit 17020008, on left bank, 20 ft (6.1 m) downstream from county road bridge, 0.8 mi (1.3 km) west of the Twisp city limits and at mile 1.6 (2.6 km).

DRAINAGE AREA.--245 mi² (635 km²).

PERIOD OF RECORD.--May 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,640 ft (500 m) from topographic map.

REMARKS.--Records good except during winter months, which are fair. No known regulation. Several diversions above station for irrigation. On Sept. 2, 1971, water diverted above station from Twisp River was measured at 61.5 ft³/s (1.74 m³/s) of which 32.9 ft³/s (0.93 m³/s) was carried by Twisp-Methow Valley Irrigation District Canal which diverts from right bank about 3.2 mi (5.1 km) west of Twisp city limits; most of the diverted water in this canal is used to irrigate land below the station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,980 ft³/s (84.4 m³/s) June 2, 3, 1975, from rating curve extended above 1,500 ft³/s (42.5 m³/s), gage height, 11.37 ft (3.466 m); minimum, 17 ft³/s (0.48 m³/s), Sept. 13, 14, 15, 16, 17, 18, 1977, gage height, 7.02 ft (2.140 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 29, 1948 had a discharge of 9,440 ft³/s (267 m³/s), by slope-area measurement made about 1,000 ft (300 m) upstream from mouth.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 802 ft³/s (22.7 m³/s) June 8, gage height, 9.47 ft (2.886 m); minimum, 17 ft³/s (0.48 m³/s) Sept. 13, 14, 15, 16, 17, 18, gage height, 7.02 ft (2.140 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	77	67	56	33	34	41	38	328	259	106	32	21
2	83	68	58	32	34	40	37	392	265	102	31	21
3	83	67	56	31	33	40	37	380	250	100	29	21
4	83	64	54	30	36	39	33	274	238	93	28	21
5	83	62	54	31	35	39	29	226	262	85	32	21
6	83	62	54	30	34	39	32	198	418	78	36	22
7	79	61	55	31	35	40	41	187	678	71	34	22
8	77	61	57	30	35	43	76	174	656	68	28	20
9	77	61	57	30	36	43	97	168	436	67	27	19
10	75	61	57	29	37	41	95	195	344	64	27	19
11	72	61	55	29	36	41	86	214	328	62	24	18
12	72	61	61	30	37	41	72	187	328	62	23	18
13	70	60	55	31	40	41	80	174	316	61	23	17
14	68	57	54	33	39	39	80	168	311	57	21	17
15	67	58	54	32	38	39	80	164	292	56	21	17
16	67	60	54	31	39	39	77	159	292	53	21	17
17	67	64	54	34	40	39	76	147	268	52	21	17
18	67	76	54	37	40	39	72	144	277	49	20	17
19	67	68	52	36	39	39	72	142	274	47	19	20
20	67	62	50	35	39	39	72	156	271	41	19	26
21	68	61	52	35	39	39	62	176	244	40	19	27
22	68	62	54	34	39	39	50	198	223	36	19	26
23	68	61	54	33	39	39	55	212	203	34	18	29
24	68	62	52	33	39	39	112	222	176	33	18	36
25	68	68	50	33	39	39	265	203	169	33	18	36
26	70	62	47	33	39	38	400	195	161	33	21	36
27	67	58	44	32	39	40	304	189	147	32	21	36
28	65	57	42	32	41	39	262	171	133	36	21	36
29	65	56	40	32	---	38	284	159	124	39	21	38
30	65	56	37	32	---	38	312	159	114	40	21	42
31	64	---	34	33	---	38	---	166	---	36	21	---
TOTAL	2220	1862	1607	997	1050	1227	3388	6227	8457	1764	734	733
MEAN	71.6	62.1	51.8	32.2	37.5	39.6	113	201	282	56.9	23.7	24.4
MAX	83	76	61	37	41	43	400	392	678	106	36	42
MIN	64	56	34	29	33	38	29	142	114	32	18	17
AC-FT	4400	3690	3190	1980	2080	2430	6720	12350	16770	3500	1460	1450

CAL YR 1976 TOTAL 125279 MEAN 342 MAX 1910 MIN 34 AC-FT 248500
WTR YR 1977 TOTAL 30264 MEAN 82.9 MAX 678 MIN 17 AC-FT 60030

12449510 METHOW RIVER NEAR TWISP, WA

LOCATION.--Lat 48°20'53", long 120°06'21", in SE¼NE¼ sec.21, T.33 N., R.22 E., Okanogan County, Hydrologic Unit 17020008, 1.3 mi (2.1 km) southeast of Twisp city limits, 2.2 mi (3.5 km) upstream from Beaver Creek and 3.0 mi (4.8 km) downstream from Twisp River.

PERIOD OF RECORD.--Water years 1976, Aug. 16 to Aug. 17, 1977.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance, and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, AUGUST 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM, .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
AUG											
16...	0730	173	170	7.3	14.0	1	9.3	96	--	B7	77
16...	1115	173	171	7.3	16.0	--	10.2	110	--	--	--
16...	1400	173	162	7.7	19.4	1	9.7	111	--	B5	--
16...	1700	173	132	7.6	20.0	--	9.6	113	--	--	--
16...	2000	173	174	7.5	19.6	1	9.4	107	B30	B10	--
16...	2300	173	168	7.2	17.7	--	8.9	98	--	--	--
17...	0230	166	156	7.3	16.4	1	9.4	100	B300	B17	--
17...	0515	166	168	7.3	15.3	--	9.0	94	--	--	--
17...	0815	166	171	7.7	14.6	--	9.7	100	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
AUG										
16...	0	25	3.6	3.7	.9	94	0	77	7.5	5.6
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
AUG										
16...	.5	.2	12	98	8	.26	.03	.15	.03	.02
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	2	.25	.03	.14	.14	.13
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--

12449600 BEAVER CREEK BELOW SOUTH FORK, NEAR TWISP, WA

LOCATION.--Lat 48°26'00", long 120°01'26", in SE¼NW¼ sec.24, T.34 N., R.22 E., Okanogan County, Hydrologic Unit 17020008, on right bank 1,000 ft (305 m) downstream from South Fork Beaver Creek, 6.5 mi (10.5 km) northeast of Twisp, and at mile 8.9 (14.3 km).

DRAINAGE AREA.--62.0 mi² (160.6 km²).

PERIOD OF RECORD.-- April 1960 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,800 ft (853 m), from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. No regulation or diversion above station.

AVERAGE DISCHARGE.--17 years, 20.0 ft³/s (0.566 m³/s), 4.38 in/yr (111 mm/yr), 14,490 acre-ft/yr (17.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 535 ft³/s (15.2 m³/s) May 29, 1972, gage height, 7.05 ft (2.149 m); minimum, 0.75 ft³/s (0.021 m³/s) Nov. 13, 16, 1968; minimum gage height, 3.94 ft (1.201 m) Nov. 19, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 80 ft³/s (2.27 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 2	1500	*23	0.65	*4.41	1.344

Minimum daily discharge, 3.6 ft³/s (0.10 m³/s) Aug. 15-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	8.2	11	6.4	7.3	7.0	7.4	9.6	12	5.6	3.9	4.0
2	7.2	7.9	11	6.4	7.2	7.0	7.4	18	11	5.4	3.7	4.0
3	7.0	7.9	11	6.3	7.2	7.0	7.5	19	9.8	5.4	4.1	4.5
4	7.0	8.2	11	6.3	7.0	6.8	7.8	14	12	5.6	4.9	4.8
5	7.2	8.2	10	6.4	6.8	6.8	8.0	11	11	5.6	5.4	4.5
6	7.2	7.9	9.6	6.5	6.8	6.8	8.7	9.8	11	5.4	5.1	4.3
7	7.2	7.9	9.4	6.6	6.8	6.8	9.3	11	11	5.4	4.6	4.2
8	7.0	7.9	9.2	6.6	6.8	6.8	10	12	10	5.2	4.3	4.1
9	7.0	8.2	8.6	6.5	6.8	6.8	12	11	9.1	5.1	4.1	4.1
10	7.0	8.2	8.4	6.5	6.8	6.8	10	12	8.5	5.1	4.0	4.0
11	6.8	7.9	8.2	6.8	6.8	6.8	8.6	16	8.5	5.1	3.9	4.1
12	6.8	7.2	8.0	7.2	6.8	6.8	7.8	12	10	5.1	3.7	4.1
13	6.8	6.5	8.0	7.6	6.7	6.8	7.6	11	15	5.2	3.7	4.2
14	6.8	8.2	8.0	7.8	6.6	6.8	7.8	9.8	12	5.1	3.7	4.3
15	6.8	13	8.0	8.0	6.5	6.8	8.0	9.4	11	4.9	3.6	4.4
16	6.8	12	8.0	8.0	6.3	7.0	8.4	9.1	9.8	4.7	3.6	4.6
17	6.8	12	8.0	8.2	6.2	7.1	8.6	9.1	10	4.7	3.6	5.0
18	7.0	12	8.0	8.5	6.1	7.2	8.9	9.8	8.8	4.6	3.6	5.6
19	7.0	12	8.0	8.4	6.0	7.2	9.0	11	8.5	4.6	3.6	6.8
20	7.0	12	7.6	8.4	5.9	7.2	9.0	11	8.8	4.4	3.6	7.6
21	7.1	12	7.4	8.4	5.8	7.2	9.0	10	8.2	4.4	3.6	5.8
22	7.2	12	7.4	8.3	5.8	7.2	9.0	9.4	7.9	4.4	3.6	5.6
23	7.4	11	7.4	8.2	5.8	7.2	9.0	11	7.3	4.3	3.6	6.9
24	7.6	11	7.2	8.1	5.7	7.2	9.0	15	7.0	4.1	3.6	5.8
25	7.9	11	7.2	8.0	5.7	7.2	9.5	12	6.8	4.3	5.0	5.4
26	8.2	11	7.0	8.0	5.8	7.2	9.6	12	6.5	4.3	10	5.1
27	8.2	11	7.0	8.0	5.9	7.2	9.8	11	6.3	4.1	8.6	4.9
28	8.2	11	7.0	7.9	6.4	7.2	9.4	10	6.0	4.3	7.0	5.0
29	8.2	11	6.8	7.8	---	7.2	9.8	9.8	5.8	4.1	6.0	5.4
30	7.6	11	6.7	7.7	---	7.2	9.4	9.4	5.6	4.1	5.0	5.8
31	8.2	---	6.6	7.5	---	7.3	---	9.8	---	4.0	4.5	---
TOTAL	225.2	295.3	256.7	231.3	180.3	217.6	265.3	354.0	275.2	148.6	141.2	148.7
MEAN	7.26	9.84	8.28	7.46	6.44	7.02	8.84	11.4	9.17	4.79	4.55	4.96
MAX	8.2	13	11	8.5	7.3	7.3	12	19	15	5.6	10	7.6
MIN	6.8	6.5	6.6	6.3	5.7	6.8	7.4	9.1	5.6	4.0	3.6	4.0
CFSM	.12	.16	.13	.12	.10	.11	.14	.18	.15	.08	.07	.08
IN.	.14	.18	.15	.14	.11	.13	.16	.21	.17	.09	.08	.09
AC-FT	447	586	509	459	358	432	526	704	546	295	280	295

CAL YR 1976 TOTAL 7052.7 MEAN 19.3 MAX 108 MIN 6.5 CFSM .31 IN 4.23 AC-FT 13990
WTR YR 1977 TOTAL 2740.2 MEAN 7.51 MAX 19 MIN 3.6 CFSM .12 IN 1.64 AC-FT 5440

NOTE.--No gage-height record Feb. 24 to Apr. 26 and Aug. 17 to Sept. 26.

12449950 METHOW RIVER NEAR PATEROS, WA

LOCATION.--Lat 48°04'39", long 119°59'02", in SE¼SW¼ sec.20, T.30 N., R.23 E., Okanogan County, Hydrologic Unit 17020008, on right bank 1.4 mi (2.3 km) downstream from Black Canyon Creek, 4.3 mi (6.9 km) northwest of Pateros, and at mile 6.7 (10.8 km).

DRAINAGE AREA.--1,772 mi² (4,589 km²).

PERIOD OF RECORD.--April 1959 to current year. Water temperatures October 1968 to October 1970.

REVISED RECORDS.--WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 900 ft (274 m) from topographic map. Prior to Dec. 17, 1964, nonrecording gage at same site and datum.

REMARKS.--Records good. Diversions for irrigation of about 11,000 acres (45 km²) above station (1959 Bureau of Reclamation land classification).

AVERAGE DISCHARGE.--18 years, 1,017 ft³/s (45.79 m³/s), 1,172,000 acre-ft/yr (1,450 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,800 ft³/s (816 m³/s) May 31, 1972, gage height, 12.25 ft (3.734 m); minimum daily 150 ft³/s (4.25 m³/s) Jan. 8, 9, 10, 1974, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge since 1920, 46,700 ft³/s (1,320 m³/s) May 29, 1948, by slope-area measurement of peak flow at site 1 mi (1.6 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,930 ft³/s (111 m³/s) June 8, gage height, 4.88 ft (1.487 m); minimum, 171 ft³/s (4.84 m³/s) Apr. 24, gage height, 0.98 ft (0.299 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	533	475	375	290	385	240	212	1710	1380	796	336	281
2	566	465	375	280	390	258	217	1940	1520	747	320	277
3	555	455	370	290	385	258	212	2310	1500	720	310	277
4	555	455	370	280	375	265	216	2010	1490	694	305	277
5	555	450	370	280	360	258	214	1670	1620	662	336	277
6	544	445	370	285	345	254	212	1460	1700	636	336	297
7	533	445	365	285	340	254	192	1360	1910	599	318	293
8	533	440	365	285	335	261	209	1270	3900	560	301	277
9	527	435	365	280	320	265	251	1250	3240	533	289	269
10	527	435	365	280	300	254	269	1270	2750	505	277	261
11	527	430	365	275	310	247	265	1530	2200	495	285	261
12	522	430	365	270	315	247	233	1510	2250	480	289	261
13	516	420	360	300	315	247	237	1370	2100	475	285	258
14	511	410	360	315	310	244	230	1320	2000	460	277	247
15	505	400	360	330	305	247	223	1130	1900	445	277	240
16	500	410	360	330	297	233	223	1220	1800	430	277	240
17	495	415	355	330	289	209	209	1160	1750	430	277	247
18	495	430	350	380	281	219	195	1120	1800	420	269	247
19	485	425	345	400	277	219	186	1120	1750	405	258	261
20	490	410	327	395	269	219	192	1130	1800	385	247	273
21	485	395	327	380	265	219	189	1220	1700	370	247	277
22	485	405	345	370	258	219	189	1360	1600	350	247	285
23	480	400	355	360	254	230	180	1460	1480	336	247	297
24	480	405	336	350	251	223	183	1660	1330	323	251	310
25	485	410	315	350	240	223	380	1530	1230	323	254	314
26	475	405	290	350	244	226	1380	1440	1160	327	265	318
27	475	370	290	345	240	226	1590	1430	1080	323	281	323
28	470	365	300	340	240	226	1430	1350	992	323	277	332
29	465	370	310	365	---	223	1460	1220	922	345	281	332
30	465	375	300	380	---	223	1590	1150	870	360	285	336
31	465	---	295	360	---	223	---	1190	---	350	285	---
TOTAL	15704	12580	10700	10120	8503	7359	12965	43870	52724	14607	8789	8465
MEAN	507	419	345	326	304	237	432	1415	1757	471	284	282
MAX	566	475	375	400	390	265	1590	2310	3900	796	336	336
MIN	465	365	290	270	240	209	180	1120	870	323	247	240
AC-FT	31150	24950	21220	20070	16870	14600	25720	87020	104600	28970	17430	16790

CAL YR 1976 TOTAL 703899 MEAN 1923 MAX 8840 MIN 290 AC-FT 1396000
WTR YR 1977 TOTAL 206366 MEAN 565 MAX 3900 MIN 180 AC-FT 409300

12449954 METHOW RIVER AT 2ND BRIDGE NEAR PATEROS, WA

LOCATION.--Lat 48°04'29", long 119°57'20", in NW¼NE¼ sec.28, T.30 N., R.23 E., Okanogan County, Hydrologic Unit 17020008, at bridge on State Highway 153, 1.7 mi (2.7 km) downstream from gaging station, 3.1 mi (5.0 km) downstream from Black Canyon Creek, 3.0 mi (4.8 km) west of Pateros, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--1,777 mi² (4,602 km²).

PERIOD OF RECORD.--Water years 1959-1962, 1963-1970 (partial- record station), 1972, 1975-76, Aug. 16 to Aug. 17, 1977 (discontinued). Records prior to October 1974 published as 12449950 "Methow River near Pateros" at an erroneous location, but were actually obtained at the present site.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance, and coliform data furnished by the Washington State Department of Ecology.

REMARKS.--Water temperature records collected October 1968 to October 1970, at gaging station 1.7 mi (2.7 km) upstream.

WATER QUALITY, AUGUST 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
AUG											
16...	0950	277	208	7.6	19.9	2	9.7	108	--	B32	88
16...	1215	277	205	7.8	21.6	--	9.9	115	--	--	--
16...	1530	277	182	8.2	23.0	1	9.6	116	--	B20	--
16...	1800	277	200	8.7	24.3	--	9.0	110	--	--	--
16...	2115	277	205	8.6	23.9	1	8.4	102	B500	B14	--
17...	0015	286	200	8.1	21.3	--	8.6	99	--	--	--
17...	0330	281	219	8.2	19.5	2	8.7	97	B800	46	--
17...	0600	281	207	7.8	18.8	--	8.7	95	--	--	--
17...	0915	281	206	7.9	19.1	--	9.7	107	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
AUG										
16...	0	[illegible]	4.4	5.0	1.6	110	0	90	4.4	12
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
AUG										
16...	1.0	.2	8.4	115	13	.12	.05	.31	.50	.40
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	13	.12	.10	.47	.50	.50
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--

12450700 COLUMBIA RIVER BELOW WELLS DAM, WA

LOCATION.--Lat 47°56'48", long 119°51'56", in SW¼SE¼ sec.6, T.28 N., R.24 E., Chelan County, Hydrologic Unit 17020005, at powerhouse of Wells Dam, 0.7 mi (1.1 km) northeast of Azwell, and at mile 515.9 (830.1 km).

DRAINAGE AREA.--86,100 mi² (223,000 km²), approximately.

PERIOD OF RECORD.--October 1967 to current year. October 1955 to September 1967 (monthly discharge only) on file in district office.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Bechtel Corporation). Prior to Oct. 1, 1970, at site 0.8 mi (1.3 km) downstream at same datum. Auxiliary water-stage recorder 6.8 mi (10.9 km) downstream from base gage at same datum.

REMARKS.--Records good. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--24 years, 120,700 ft³/s (3,418 m³/s), 87,450,000 acre-ft/yr (108,000 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 402,000 ft³/s (11,400 m³/s) June 15, 1972; maximum elevation, 731.92 ft (223.089 m) June 16, 1972; minimum discharge, 17,900 ft³/s (507 m³/s) Oct. 5, 1970, elevation, 703.88 ft (214.543 m), from powerplant records.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 204,000 ft³/s (5,780 m³/s) Sept. 16; maximum elevation, 717.11 ft (218.575 m) Aug. 18; minimum daily discharge, 26,400 ft³/s (748 m³/s) July 10; minimum elevation, 705.72 ft (215.103 m) Sept. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99000	94700	105000	117000	121000	98500	75500	36500	114000	57800	83900	84800
2	104000	94500	106000	98200	124000	115000	57300	101000	122000	39600	82000	85500
3	90000	96300	93500	114000	121000	119000	35600	99400	42400	30000	88400	51800
4	99800	100000	87200	106000	107000	104000	61000	92100	56000	35100	72300	51400
5	99300	98100	68400	112000	118000	81900	65500	97200	29300	64100	83600	50200
6	97300	74400	100000	113000	85400	80700	63000	93400	65300	79000	57600	87900
7	99100	50900	93500	101000	113000	121000	65200	58200	60400	73800	45100	89700
8	96300	83700	77900	104000	87600	96500	64900	33100	67000	50000	45200	90000
9	103000	94100	82100	107000	80000	103000	58900	114000	55600	35900	82900	84300
10	84700	103000	81700	125000	77400	93000	34900	118000	61100	26400	45200	63700
11	94100	108000	71600	114000	79100	89100	64700	115000	60400	55000	89600	55000
12	107000	98100	71900	109000	71800	64300	50300	94600	30500	62800	88000	93700
13	111000	108000	99700	89100	62000	55000	64700	94100	71400	76500	62500	90000
14	105000	68600	100000	105000	98700	101000	72400	94600	66100	86200	53600	84400
15	106000	105000	90500	86200	83000	113000	72900	53000	70500	82400	84600	90400
16	122000	98900	98100	68800	92800	84600	53500	110000	97600	68700	84200	93900
17	93900	91600	100000	88500	92400	97700	65000	108000	100000	56400	82600	59500
18	106000	102000	102000	78700	85300	92400	77700	115000	69200	85900	79800	69700
19	107000	92400	88600	92000	62800	70600	78400	104000	57000	79500	71400	80700
20	101000	76600	110000	101000	61900	61900	83300	94600	77700	87200	55000	87400
21	107000	67300	107000	103000	109000	81600	79500	55200	76900	69100	50200	81700
22	115000	101000	110000	115000	103000	92100	84700	51000	79200	89300	92300	84700
23	96000	102000	100000	123000	112000	103000	58000	136000	62700	57700	74900	87300
24	90900	100000	102000	131000	111000	112000	33100	142000	66000	67000	75600	77200
25	97600	55000	66800	122000	123000	104000	70800	118000	53600	74200	74400	61200
26	91600	82700	46300	118000	81600	58000	63400	122000	55500	80900	60600	93400
27	112000	92400	84900	125000	69400	83900	59100	115000	74400	87400	60300	81500
28	110000	88100	117000	138000	93800	91400	55500	39300	71500	84100	53500	74100
29	109000	110000	106000	155000	---	86600	60900	32200	66600	90300	85000	64900
30	110000	103000	105000	148000	---	84100	48600	70600	63100	70700	80300	61900
31	91600	---	105000	130000	---	77200	---	106000	---	66600	87600	---
TOTAL	3156200	2740400	2877700	3437500	2624000	2825100	1867700	2818900	2101000	2056200	2325600	2309100
MEAN	101800	91350	92830	110900	93710	91130	62260	90930	70030	66300	75020	76970
MAX	122000	110000	117000	155000	124000	121000	84700	142000	122000	90300	97300	93900
MIN	84700	50900	46300	68800	61900	55000	33100	32200	29300	26400	45100	49700
AC-FT	6260000	5436000	5708000	6818000	5205000	5604000	3705000	5591000	4167000	4082000	4613000	4580000

CAL YR 1976 TOTAL 50660200 MEAN 138400 MAX 238000 MIN 37000 AC-FT 100500000
WTR YR 1977 TOTAL 31141600 MEAN 85320 MAX 155000 MIN 26400 AC-FT 61770000

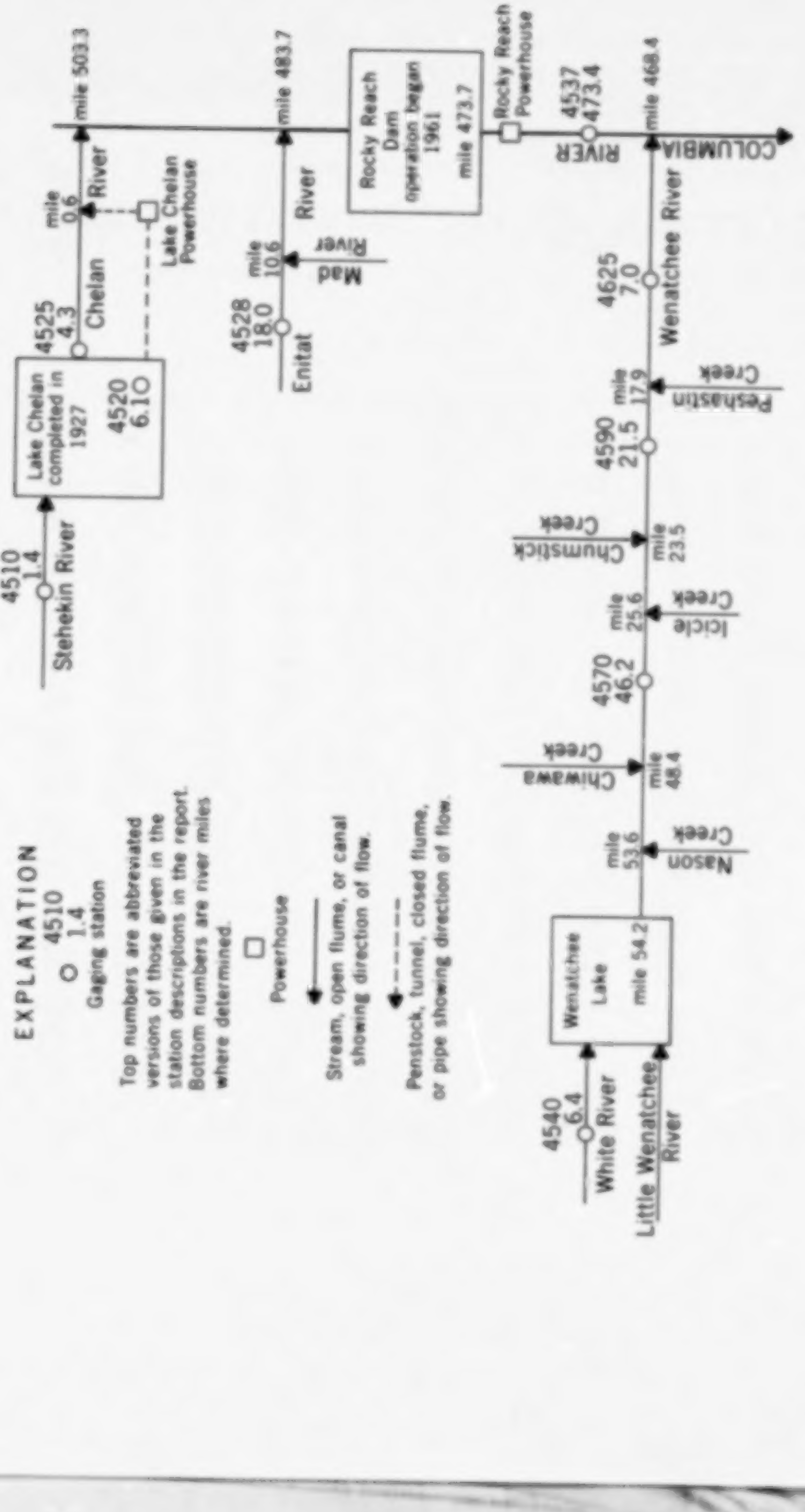
EXPLANATION
4510
1.4
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
4510
1.4
Stehekin River
Lake Chelan completed in 1927
4520
6.10
4525
4.3
Chelan
River
mile 0.6
Lake Chelan Powerhouse
mile 503.3
4528
18.0
Entiat
River
Mad River
mile 10.6
mile 483.7
Rocky Reach Dam operation began 1961 mile 473.7
Rocky Reach Powerhouse
4537
473.4
COLUMBIA RIVER
mile 468.4
4540
6.4
White River
Little Wenatchee River
Wenatchee Lake mile 54.2
Nason Creek
mile 53.6
Chiwawa Creek
mile 48.4
4570
46.2
Icicle Creek
mile 25.6
Chumstick Creek
mile 23.5
4590
21.5
Peshastin Creek
mile 17.9
4625
7.0
Wenatchee River

Figure 12. Gaging stations in Columbia River basin from Chelan to Wenatchee Rivers.

12451000 STEHEKIN RIVER AT STEHEKIN, WA

LOCATION.--Lat 48°19'47", long 120°41'26", in NE¼SE¼ sec.26, T.33 N., R.17 E., Chelan County, Hydrologic Unit 17020009, Lake Chelan National Recreation Area, on left bank 1,100 ft (335 m) upstream from Boulder Creek, 1.4 mi (2.3 km) upstream from Lake Chelan, and 2.1 mi (3.4 km) northwest of Stehekin. Records include flow of Boulder Creek.

DRAINAGE AREA.--344 mi² (891 km²), includes that of Boulder Creek.

PERIOD OF RECORD.--October 1910 to October 1915, October 1926 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 412: 1914. WSP 1316: 1911(M), 1914-15(M). WSP 1446: 1912(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,098.5 ft (334.82 m) above mean sea level (unadjusted). Prior to Aug. 17, 1911, nonrecording gage 0.4 mi (0.6 km) upstream from mouth at Lake Chelan at different datums (datum change made June 13, 1911). Aug. 17, 1911, to Oct. 31, 1915, nonrecording gage 0.2 mi (0.3 km) downstream from Boulder Creek at different datum.

REMARKS.--Records good. No known regulation or diversion.

AVERAGE DISCHARGE.--56 years, 1,426 ft³/s (40.38 m³/s) 56.29 in/yr (1,430 mm/yr) 1,033,000 acre-ft/yr (1,270 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,900 ft³/s (535 m³/s) May 29, 1948, gage height, 29.00 ft (8.839 m), from rating curve extended above 11,000 ft³/s (312 m³/s) on basis of slope-area measurement of peak flow; minimum, 56 ft³/s (1.59 m³/s) Jan. 21, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 6,500 ft³/s (184 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 7	2230	*5,800	164	*23.40	132

Minimum daily discharge, 220 ft³/s (6.23 m³/s) Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	887	355	350	253	324	371	308	2690	1830	1570	1230	639
2	924	326	355	250	321	354	307	3180	1570	1440	1360	662
3	745	310	330	247	314	355	318	2770	1400	1170	1540	1030
4	631	304	324	244	310	347	355	2160	1700	1000	1620	1210
5	590	304	321	241	307	334	460	1740	2110	900	1530	1030
6	571	293	318	236	300	347	616	1470	3550	823	1510	636
7	546	280	314	232	293	359	900	1360	4960	741	1410	716
8	542	286	310	229	286	347	1290	1340	4330	849	1360	656
9	536	282	293	226	286	347	1160	1420	2950	946	1310	605
10	504	280	268	223	286	347	1020	1650	2530	930	1310	509
11	609	280	262	220	286	367	930	1520	2500	1100	1330	610
12	587	279	262	225	302	355	865	1370	2840	1200	1490	610
13	566	272	256	230	565	339	805	1260	2790	1060	1530	633
14	523	272	265	235	429	335	843	1180	2720	1070	1550	639
15	681	268	293	240	466	332	817	1180	2630	1160	1400	555
16	447	434	307	250	402	310	770	1060	2530	1230	1360	505
17	415	900	304	294	420	310	741	1020	2720	1370	1330	461
18	390	742	300	1900	429	304	716	1060	3000	1160	1300	429
19	370	535	286	1190	434	296	674	1150	3100	1020	1220	565
20	358	447	276	825	434	290	645	1220	2930	961	1190	503
21	351	416	268	606	438	286	633	1480	2520	1060	1170	550
22	339	384	265	550	436	286	660	1540	2480	1160	1070	495
23	335	375	262	495	420	290	953	1600	2170	1140	984	475
24	332	400	256	465	390	296	2020	1420	1980	1160	1030	471
25	330	555	256	442	393	300	3500	1270	2170	1290	984	433
26	321	434	272	420	300	290	3720	1300	1930	1380	800	411
27	307	384	293	393	300	300	2720	1100	1710	1470	772	393
28	307	384	268	371	300	304	2430	1060	1680	1640	770	380
29	310	375	265	359	---	307	2540	1000	1500	1460	1290	380
30	304	363	259	355	---	310	2590	976	1400	1150	836	372
31	321	---	256	343	---	316	---	1150	---	1100	690	---
TOTAL	14876	11727	8920	12961	10447	10113	36412	45720	74630	35880	38462	17023
MEAN	480	391	288	418	373	326	1214	1475	2488	1157	1241	567
MAX	887	900	350	1900	565	371	3720	3180	4960	1640	1620	1210
MIN	304	268	256	220	286	286	307	976	1400	741	690	372
CFSM	1.40	1.14	.84	1.22	1.08	.95	3.53	4.29	7.23	3.36	3.61	1.65
IN.	1.61	1.27	.97	1.40	1.13	1.09	3.94	4.94	8.07	3.88	4.16	1.84
AC-FT	29500	23260	17710	25710	20720	20060	72220	90700	148000	71170	76290	33770

CAL YR 1976 TOTAL 593550 MEAN 1622 MAX 6720 MIN 256 CFSM 4.72 IN 64.19 AC-FT 1177000
WTR YR 1977 TOTAL 318084 MEAN 871 MAX 4960 MIN 220 CFSM 2.53 IN 34.40 AC-FT 630900

12452000 LAKE CHELAN AT CHELAN, WA

LOCATION.--Lat 47°50'11", long 120°03'37", near center of sec.15, T.27 N., R.22 E., Chelan County, Hydrologic Unit 17020009, on south shore of Lake Chelan at Lakeside, 2.1 mi (3.4 km) west of Chelan.

DRAINAGE AREA.--924 mi² (2,393 km²).

PERIOD OF RECORD.--September 1897 to December 1899, January to June 1905 and December 1910 to September 1911 (fragmentary gage heights only); October 1911 to current year. Records of change in contents prior to October 1911, published in WSP 482 and 492 in conjunction with records for Chelan River near Chelan, have been found to be unreliable and should not be used. Month-end contents October 1911 to September 1950 published in WSP 1316, chemical analyses June 1971 to August 1972.

REVISED RECORDS.--WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level, adjustment of 1912. Prior to Jan. 1, 1900, nonrecording gage at Lakeside about 1 mi (1.6 km) west of Chelan at datum 1,070.18 ft (326.191 m) above mean sea level, adjustment of 1912. Jan. 1 to June 30, 1905, nonrecording gage at upper highway bridge at Chelan at different datum. Dec. 3, 1910, to Nov. 13, 1927, nonrecording gage at Forest Service boat landing at Chelan at datum 1,076.07 ft (327.986 m) above mean sea level, adjustment of 1912.

REMARKS.--Reservoir is formed by low concrete dam at lake outlet completed Sept. 3, 1927. Usable capacity between elevations 1,079 (328.9 m) and 1,100 ft (335.3 m) 677,400 acre-ft (835 hm³). Regulation between these elevations is allowed by stipulation of the Federal Power Commission. Water is used for power development. Elevation of lake maintained between 1,092 (332.8 m) and 1,100 ft (335.3 m) during period Aug. 16 to Sept. 15 for scenic effect and recreational purposes. Diversions for irrigation of about 6,280 acres (25 km²) with an annual depletion of about 11,000 acre-ft (13.6 hm³), 1946 estimated.

COOPERATION.--Gage height record collected in cooperation with Public Utility District No. 1 of Chelan County.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,100.08 ft (335.304 m) Aug. 7, 1976 (affected by seiche action); maximum contents, 678,000 acre-ft (836 hm³) July 20, 1976, elevation, 1,100.02 ft (335.286 m); minimum since completion of dam in 1927, 1,079.68 ft (329.086 m) Apr. 3, 4, 1937, Apr. 3, 1970, contents, 21,330 acre-ft (26.3 hm³); minimum elevation, 1,076.78 ft (328.203 m), Jan. 27, 28, Dec. 2-5, 1898.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,098.54 ft (334.835 m) Oct. 1 (affected by seiche action), contents, 629,300 acre-ft (776 hm³); minimum elevation, 1,085.33 ft (330.809 m) Apr. 5, 6, contents, 200,800 acre-ft (248 hm³).

Capacity table (elevation in feet, and usable contents, in acre-feet)
(Based on data by the Washington Water Power Co.)

1,080	31,300	1,090	350,900	1,100	677,400
1,085	190,200	1,095	513,300		

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1098.50	1095.66	1092.89	1089.79	1087.10	1086.00	1085.45	1087.58	1091.37	1096.81	1097.30	1097.04
2	1098.43	1095.58	1092.78	1089.70	1087.02	1085.97	1085.41	1087.79	1091.52	1096.94	1097.30	1096.98
3	1098.40	1095.49	1092.69	1089.58	1086.94	1085.97	1085.39	1088.02	1091.65	1096.98	1097.30	1096.96
4	1098.27	1095.39	1092.58	1089.47	1086.88	1085.97	1085.36	1088.23	1091.82	1096.99	1097.32	1096.92
5	1098.20	1095.28	1092.45	1089.37	1086.80	1085.95	1085.34	1088.38	1091.95	1097.04	1097.37	1096.92
6	1098.13	1095.18	1092.36	1089.26	1086.72	1085.93	1085.34	1088.51	1092.18	1097.07	1097.36	1096.88
7	1098.05	1095.06	1092.25	1089.14	1086.68	1085.92	1085.37	1088.62	1092.57	1097.06	1097.37	1096.83
8	1097.96	1094.95	1092.18	1089.02	1086.61	1085.93	1085.46	1088.73	1092.94	1097.08	1097.42	1096.79
9	1097.88	1094.88	1092.10	1088.92	1086.52	1085.95	1085.55	1088.85	1093.20	1097.16	1097.43	1096.70
10	1097.83	1094.79	1092.00	1088.79	1086.49	1085.94	1085.62	1088.96	1093.39	1097.16	1097.43	1096.63
11	1097.76	1094.70	1091.90	1088.69	1086.43	1085.88	1085.70	1089.13	1093.62	1097.15	1097.43	1096.58
12	1097.68	1094.60	1091.80	1088.61	1086.37	1085.87	1085.70	1089.24	1093.83	1097.20	1097.45	1096.50
13	1097.58	1094.49	1091.69	1088.50	1086.32	1085.87	1085.76	1089.35	1094.06	1097.22	1097.47	1096.45
14	1097.47	1094.38	1091.58	1088.40	1086.25	1085.84	1085.73	1089.44	1094.27	1097.23	1097.47	1096.40
15	1097.39	1094.27	1091.48	1088.28	1086.20	1085.81	1085.73	1089.53	1094.51	1097.25	1097.48	1096.34
16	1097.28	1094.21	1091.35	1088.19	1086.17	1085.81	1085.70	1089.63	1094.71	1097.30	1097.47	1096.26
17	1097.19	1094.14	1091.25	1088.10	1086.11	1085.80	1085.81	1089.71	1094.87	1097.31	1097.47	1096.20
18	1097.10	1094.06	1091.19	1088.09	1086.04	1085.77	1085.80	1089.80	1095.10	1097.34	1097.47	1096.12
19	1097.00	1093.98	1091.10	1088.12	1086.02	1085.77	1085.87	1089.89	1095.33	1097.35	1097.46	1096.06
20	1096.90	1093.90	1090.97	1088.07	1086.06	1085.72	1085.86	1090.01	1095.62	1097.33	1097.43	1096.06
21	1096.80	1093.83	1090.85	1088.02	1086.08	1085.70	1085.88	1090.12	1095.77	1097.33	1097.43	1096.00
22	1096.70	1093.74	1090.75	1087.92	1086.10	1085.66	1085.92	1090.23	1095.94	1097.34	1097.46	1095.92
23	1096.58	1093.64	1090.70	1087.83	1086.07	1085.65	1085.96	1090.36	1096.07	1097.32	1097.40	1095.86
24	1096.46	1093.52	1090.58	1087.75	1085.90	1085.63	1086.08	1090.52	1096.21	1097.29	1097.38	1095.83
25	1096.35	1094.45	1090.49	1087.67	1085.94	1085.60	1086.27	1090.61	1096.30	1097.27	1097.36	1095.77
26	1096.26	1093.30	1090.43	1087.58	1085.92	1085.59	1086.60	1090.76	1096.45	1097.28	1097.31	1095.70
27	1096.16	1093.20	1090.32	1087.50	1085.90	1085.60	1086.81	1090.82	1096.53	1097.25	1097.27	1095.63
28	1096.06	1093.17	1090.22	1087.37	1085.97	1085.56	1087.01	1090.95	1096.58	1097.35	1097.23	1095.57
29	1095.96	1093.07	1090.11	1087.27	---	1085.52	1087.10	1091.08	1096.67	1097.33	1097.22	1095.52
30	1095.85	1092.98	1090.03	1087.22	---	1085.50	1087.37	1091.12	1096.72	1097.30	1097.18	1095.45
31	1095.75	---	1089.90	1087.14	---	1085.49	---	1091.21	---	1097.30	1097.10	---
MEAN	1097.23	1094.36	1091.30	1088.37	1086.35	1085.70	1085.91	1089.50	1094.30	1097.20	1097.37	1096.29
MAX	1098.50	1095.66	1092.89	1089.79	1087.10	1086.00	1087.37	1091.21	1096.72	1097.35	1097.48	1097.04
MIN	1095.75	1092.98	1089.90	1087.14	1085.90	1085.49	1085.34	1087.58	1091.37	1096.81	1097.10	1095.45
†	536,200	446,300	346,400	258,100	221,800	205,500	269,400	391,300	570,900	589,300	581,400	528,100
‡	-93,100	-89,900	-99,900	-88,300	-36,300	-16,300	+63,900	+121,900	+179,600	+18,400	-7,900	-53,300

CAL YR 1976: MAX 1,099.98 MIN 1,089.90 ‡ -227,100
WTR YR 1977: MAX 1,098.50 MIN 1,085.34 ‡ -101,200

† Contents, in acre-feet, at 2400 hours, on last day of month.
‡ Change in contents, in acre-feet.

12452500 CHELAN RIVER AT CHELAN, WA

LOCATION.--Lat 47°50'05", long 120°00'43", in S½SE¼ sec.13, T.27 N., R.22 E., Chelan County, Hydrologic Unit 17020009, near right bank in forebay upstream from control dam at outlet of Lake Chelan, 0.4 mi (0.6 km) south of Chelan, and at mile 4.3 (6.9 km).

DRAINAGE AREA.--924 m² (2,393 km²).

PERIOD OF RECORD.--November 1903 to current year. Published as "below Chelan Lake" 1904-05. Adjusted records for October 1903 to September 1911, published in WSP 482, 492, and 870 are unreliable and should not be used. Chemical analyses, water years 1962-72, 1975-76.

REVISED RECORDS.--WSP 482: 1904-13. WSP 612: 1924. WSP 1246: 1951. WSP 1286: 1952. WSP 1933: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder and concrete dam. Datum of gage is at mean sea level, adjustment of 1912. Prior to Jan. 7, 1927, nonrecording gage at site 800 ft (244 m) downstream and Jan. 7 to Sept. 30, 1927, nonrecording gage about 500 to 1,000 ft (152 to 305 m) downstream at same datum. Oct. 1, 1927, to Nov. 10, 1928, nonrecording gage and Nov. 11, 1928, to Mar. 19, 1939, water-stage recorder at sites 2.5 mi (4.0 km) downstream at same datum.

REMARKS.--Records good. Unmeasured water that is diverted for irrigation above station is a small percentage of total runoff. Chelan County Public District No. 1 diverts water at Chelan to develop about 40,000 KW and to irrigate an unknown area near Chelan. This quantity is included in records of daily discharge. Diversions for irrigation of about 6,280 acres (25 km²), depletion 11,000 acre-ft (13.6 hm³) 1964 estimate. Flow regulated by Lake Chelan (see sta 12452000).

COOPERATION.--Records of water used for power and irrigation furnished by the Public Utility District No. 1 of Chelan County.

AVERAGE DISCHARGE.--73 years (water years 1905-77), 2,064 ft³/s (58.45 m³/s) 30.33 in/yr (770 mm/yr), 1,495,000 acre-ft (1,840 hm³/yr), adjusted for storage since October 1911.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 18,400 ft³/s (521 m³/s) June 3, 1968; no flow part of day Jan. 30, 1917, when lake outlet was blocked with ice, and at other times owing to artificial regulation.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 2,190 ft³/s (62.0 m³/s) Oct. 29-31; minimum daily, 12 ft³/s (0.340 m³/s) May 2, 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1960	2060	1950	1900	1500	623	706	62	17	488	1520	1520
2	2110	1930	1930	1900	1500	733	706	12	17	488	1520	1520
3	2110	1990	1940	1900	1500	583	706	12	17	508	1520	1520
4	2050	1960	1930	1900	1500	593	706	16	17	468	1520	1520
5	2010	1970	1940	1900	1500	703	706	16	17	458	1520	1520
6	2010	1980	1920	1900	1500	703	712	16	17	508	1520	1520
7	2010	1990	1920	2000	1500	703	172	16	17	578	1520	1520
8	1810	1980	1920	2030	1500	703	112	16	18	818	1040	1520
9	1930	1980	1930	2000	1500	704	112	16	18	818	948	1520
10	2000	1990	1920	1990	1500	704	112	16	18	818	1160	1520
11	2010	1980	1930	1960	1500	704	612	18	18	818	1310	1520
12	2030	1950	1920	1990	1500	704	842	18	18	818	1330	1520
13	1970	2000	1930	2000	1500	704	834	18	18	819	1520	1520
14	1980	2010	1900	2000	1500	704	884	18	18	819	1520	1520
15	1960	1960	1900	2000	1240	704	1010	18	28	819	1520	1520
16	1950	1890	1900	2000	1120	705	114	18	28	819	1520	1520
17	1960	1940	1900	1970	1150	705	114	18	28	819	1520	1520
18	2080	1960	1900	1960	1300	705	704	14	28	919	1520	1520
19	2130	1960	1900	1980	53	705	654	114	28	819	1440	1520
20	2130	1960	1900	1980	53	705	637	14	28	1220	1460	1520
21	2160	1960	1900	1980	53	705	717	14	28	1220	1480	1510
22	2180	1960	1900	1970	1000	705	137	14	408	1290	1350	1510
23	2120	1940	1900	1970	1500	705	117	14	488	1520	1370	1510
24	2120	2000	1900	1980	1500	705	117	14	518	1520	1470	1510
25	2150	1980	1900	1950	1060	705	117	17	818	1520	1520	1510
26	2110	1960	1900	1980	703	705	117	17	438	1520	1520	1510
27	2130	1940	1900	1970	233	705	112	17	548	1520	1520	1470
28	2150	1940	1890	1960	583	705	112	17	808	1520	1520	1510
29	2190	1940	1890	1820	---	705	62	17	618	1520	1570	1510
30	2190	1940	1900	1500	---	706	62	17	598	1100	1520	1510
31	2190	---	1900	1500	---	706	---	17	---	1080	1520	---
TOTAL	63890	59020	59260	59840	32548	21554	12825	641	5683	29969	44808	45460
MEAN	2061	1967	1912	1930	1162	695	428	20.7	189	967	1445	1515
MAX	2190	2080	1950	2030	1500	733	1010	114	818	1520	1570	1520
MIN	1810	1890	1890	1500	53	583	62	12	17	458	948	1470
AC-FT	126700	117100	117500	118700	64560	42750	25440	1270	11270	59440	88880	90170
†	-93,100	-89,900	-99,900	-88,300	-36,300	-16,300	+63,900	+121,900	+179,600	+18,400	-7,900	-53,300
MEAN‡	546	457	286	494	510	431	1,501	2,004	3,208	1,265	1,317	620
CFSM‡	0.60	.50	.31	.54	.56	.47	1.65	2.20	3.53	1.39	1.45	.68
IN.‡	0.68	.55	.36	.62	.57	.54	1.81	2.50	3.88	1.58	1.64	.75
AC-FT‡	33,600	27,200	17,600	30,400	28,300	26,500	89,300	123,200	190,900	77,800	81,000	36,900

CAL YR 1976: TOTAL 987,437 MEAN 2,698 MAX 9,240 MIN 2.0 AC-FT 1,959,000
DO.....: MEAN‡ 2,430 CFSM‡ 2.63 IN.‡ 35.82 AC-FT‡ 1,764,300
WTR YR 1977: TOTAL 435,498 MEAN 1,193 MAX 2,190 MIN 12 AC-FT 863,800
DO.....: MEAN‡ 1,053 CFSM‡ 1.16 IN.‡ 15.48 AC-FT‡ 762,700

† Change in contents, in acre-feet, in Lake Chelan.
‡ Adjusted for change in contents in Lake Chelan.

12452800 ENTIAT RIVER NEAR ARDENVOIR, WA

LOCATION.--Lat 47°49'07", long 120°25'19", in NE¼NE¼ sec.27, T.27 N., R.19 E., Chelan County, Hydrologic Unit 17020010, on left bank 0.5 mi (0.8 km) downstream from Stormy Creek, 6.0 mi (9.7 km) northwest of Ardenvoir, and at mile 18.0 (29.0 km).

DRAINAGE AREA.--203 mi² (526 km²).

PERIOD OF RECORD.--September 1957 to current year. Water temperatures July 1968 to September 1970.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,560.97 ft (475.784 m) above mean sea level, unadjusted.

REMARKS.--Records excellent except those for period of no gage-height record Aug. 8 to Sept. 30, which are fair. No regulation or diversion.

AVERAGE DISCHARGE.--20 years, 389 ft³/s (11.02 m³/s), 26.02 in/yr (661 mm/yr), 281,800 acre-ft/yr (347 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,430 ft³/s (182 m³/s) June 10, 1972, gage height, 8.98 ft (2.737 m); minimum daily, 25 ft³/s (0.71 m³/s) Dec. 17, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,110 ft³/s (31.4 m³/s) June 8, gage height, 4.28 ft (1.305 m); minimum daily discharge, 43 ft³/s (1.22 m³/s) Jan. 5; minimum gage height, 0.84 ft (0.256 m) Nov. 27, 28, Dec. 20, 24, Dec. 31 to Jan. 2, and Jan. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	159	125	69	53	77	82	71	594	483	272	142	92
2	159	99	70	50	76	80	71	708	437	270	144	100
3	157	95	73	49	74	79	74	630	406	246	150	120
4	156	93	79	48	72	78	100	526	455	224	157	135
5	156	92	75	43	71	77	134	451	469	206	190	130
6	154	90	72	45	70	78	170	402	650	192	204	120
7	152	87	82	46	69	80	228	370	875	177	168	110
8	149	88	87	45	69	87	307	355	940	172	157	100
9	147	92	83	44	70	87	262	343	744	172	149	98
10	144	92	77	49	74	82	220	385	650	174	146	96
11	141	88	76	52	79	80	202	385	618	175	144	96
12	138	86	74	55	139	79	198	343	646	184	142	98
13	136	83	73	60	136	78	196	340	618	177	147	100
14	131	75	70	70	106	75	188	334	610	168	144	104
15	130	83	74	68	91	76	179	328	586	170	142	88
16	125	85	78	75	91	75	174	302	542	175	138	74
17	122	108	74	95	92	73	165	287	530	174	131	66
18	117	125	73	139	88	72	159	292	550	168	130	62
19	114	95	65	204	86	72	152	292	542	161	127	100
20	111	84	52	133	84	71	147	325	550	152	124	122
21	108	81	64	110	85	71	147	364	502	149	124	122
22	103	84	77	94	83	74	152	392	469	150	120	100
23	100	84	69	86	82	82	216	420	423	154	113	96
24	98	90	58	81	78	77	379	382	382	150	112	100
25	100	102	64	78	80	74	606	346	385	152	116	92
26	97	79	82	87	79	73	654	355	361	168	102	84
27	95	52	86	84	79	79	542	328	334	161	96	80
28	94	60	66	81	86	73	522	305	313	172	116	84
29	94	68	58	75	---	72	558	292	307	175	140	86
30	91	69	58	72	---	71	566	300	285	154	120	84
31	102	---	55	75	---	71	---	315	---	144	100	---
TOTAL	3880	2634	2213	2346	2366	2378	7739	11791	15662	5538	4235	2939
MEAN	125	87.8	71.4	75.7	84.5	76.7	258	380	522	179	137	98.0
MAX	159	125	87	204	139	87	654	708	940	272	204	135
MIN	91	52	52	43	69	71	71	287	285	144	96	62
CFSM	.62	.43	.35	.37	.42	.38	1.27	1.87	2.57	.88	.68	.48
IN.	.71	.48	.41	.43	.43	.44	1.42	2.16	2.87	1.01	.78	.54
AC-FT	7700	5220	4390	4650	4690	4720	15350	23390	31070	10980	8400	5830

CAL YR 1976 TOTAL 182280 MEAN 498 MAX 2290 MIN 52 CFSM 2.45 IN 33.40 AC-FT 361600
WTR YR 1977 TOTAL 63721 MEAN 175 MAX 940 MIN 43 CFSM .86 IN 11.68 AC-FT 126400

12452990 ENTIAT RIVER NEAR ENTIAT, WA

LOCATION.--Lat 47°39'48", long 120°14'58", in NW¼SE¼ sec.18, T.25 N., R.21 E., Chelan County, Hydrologic Unit 17020010, at road bridge 1.2 mi (1.9 km) west of Entiat High School and at mile 1.4 (2.3 km).

DRAINAGE AREA.--419 mi² (1,085 km²).

PERIOD OF RECORD.--Water years 1959-70, 1972, 1975-76, Aug. 16 to Aug. 17, 1977. See REMARKS.

REMARKS.--Prior to October 1974 published as 12453000. Prior to September 1970 samples taken at site 1.7 mi (2.7 km) upstream.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance, and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, AUGUST 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
AUG											
16...	0900	139	74	7.2	17.5	1	9.9	104	--	B150	34
16...	1130	139	74	--	20.1	--	9.7	108	--	--	--
16...	1435	137	84	7.4	23.8	1	9.0	107	--	85	--
16...	1730	135	74	7.2	24.5	--	8.7	105	--	--	--
16...	2030	135	78	7.9	22.5	1	9.0	105	3900	68	--
16...	2320	132	84	7.1	20.1	--	9.1	102	--	--	--
17...	0235	130	86	7.8	18.1	1	9.4	101	890	35	--
17...	0530	130	90	7.5	16.9	--	10.0	105	--	--	--
17...	0850	128	103	7.6	17.0	--	10.2	107	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
AUG										
16...	1	10	2.1	2.6	1.4	40	0	33	4.0	3.5
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	36	0	30	2.3	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO, PHOSPHORUS (P) (MG/L)
AUG										
16...	1.1	.1	11	52	32	.19	.08	.20	.04	.01
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	17	.18	.11	.32	.05	.01
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--

12453700 COLUMBIA RIVER AT ROCKY REACH DAM, WA

LOCATION.--Lat 47°31'28", long 120°18'04", in SW¼NW¼ sec.2, T.23 N., R.20 E., Chelan County, Hydrologic Unit 17020010, on right bank 0.5 mi (0.8 km) downstream from Rocky Reach Dam, 1.5 mi (2.4 km) downstream from Swakane Creek, 7.4 mi (11.9 km) north of Wenatchee, and at mile 473.4 (761.7 km).

DRAINAGE AREA.--87,800 mi² (227,400 km²), approximately.

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Auxiliary water-stage recorder. 1.9 mi (3.1 km) downstream from base gage at same datum.

REMARKS.--Records good. Flow regulated by nine major reservoirs and numerous smaller reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--17 years, 119,800 ft³/s (3,393 m³/s) 86,800,000 acre-ft/yr (107,000 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 535,000 ft³/s (15,200 m³/s) June 10, 1961, elevation, about 635.50 ft (193.700 m); minimum daily, 25,100 ft³/s (711 m³/s) Nov. 11, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 150,000 ft³/s (4,250 m³/s) Jan. 29; minimum daily, 45,000 ft³/s (1,270 m³/s) Apr. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109000	98400	103000	117000	114000	98700	88000	54900	118000	67900	81800	89400
2	112000	98700	99900	103000	112000	116000	65000	108000	128000	50300	83600	87800
3	99900	101000	96400	111000	106000	112000	45000	102000	97500	45800	93300	62100
4	109000	104000	88900	107000	94200	108000	69000	93900	63900	48400	79000	56100
5	108000	101000	73900	113000	103000	84300	63000	103000	45700	69200	85800	56300
6	105000	79300	99700	120000	80400	83500	68100	95500	73100	82500	72400	83700
7	108000	54700	97000	103000	113000	126000	68800	65500	66700	78500	58500	90500
8	104000	84900	77000	107000	89700	99500	63200	51000	70500	66600	82700	91500
9	108000	96400	82600	111000	85400	117000	63700	110000	64500	49400	96600	88500
10	96000	108000	90000	126000	78500	100000	51200	116000	68900	45700	91800	73500
11	103000	108000	70800	121000	85000	96300	65600	114000	59800	63400	92200	61400
12	114000	98800	74200	110000	73000	65900	68600	98900	50700	68300	91000	87700
13	118000	110000	100000	92800	66600	64200	69100	93600	75500	83500	75500	91600
14	109000	73500	100000	113000	92000	106000	73900	94900	75500	91800	64300	87300
15	112000	106000	95800	93300	86400	117000	78700	63400	81300	87700	88500	92200
16	124000	101000	99900	77600	94200	95700	60800	109000	104000	78000	90800	95100
17	101000	94700	100000	101000	95500	101000	54100	114000	102000	60800	85700	67800
18	112000	107000	102000	92700	89400	97400	86000	122000	75600	82900	73700	55800
19	112000	93700	91400	94400	69900	75900	83200	104000	65700	84000	78600	81700
20	102000	81600	111000	102000	62500	64600	87100	98500	84800	97800	67900	90000
21	110000	68800	109000	106000	103000	81300	85400	64800	82600	108000	54700	83500
22	114000	101000	113000	112000	101000	95800	87100	61700	85600	93400	85400	86000
23	101000	104000	101000	121000	122000	107000	64000	134000	68700	71200	71800	90900
24	87600	104000	104000	126000	101000	118000	45800	142000	73100	56700	72900	80200
25	101000	61900	70000	121000	118000	110000	76200	123000	64000	73200	75000	68800
26	94500	73800	51000	111000	82500	71100	69200	126000	64300	84600	68200	91200
27	115000	96000	85700	120000	71200	85700	65600	123000	80800	91700	66700	84200
28	117000	93500	119000	132000	101000	103000	61300	53200	75100	93300	56800	78000
29	109000	112000	109000	150000	---	93700	67200	49700	72500	94000	79100	71700
30	111000	107000	109000	134000	---	94600	59400	75700	65600	82500	76100	69400
31	94200	---	107000	119000	---	95100	---	107000	---	59200	88900	---
TOTAL	3320200	2822700	2931200	3467800	2590400	2984300	2053300	2972200	2303800	2310300	2429300	2393400
MEAN	107100	94090	94550	111900	92510	96270	68440	95880	76790	74530	78360	79780
MAX	124000	112000	119000	150000	122000	126000	88000	142000	128000	108000	96600	95100
MIN	87600	54700	51000	77600	62500	64200	45000	49700	45700	45700	54700	55800
AC-FT	[illegible]6000	5599000	5814000	6878000	5138000	5919000	4073000	5895000	4570000	4582000	4819000	4747000

CAL YR 1976 TOTAL 50860000 MEAN 139000 MAX 243000 MIN 44000 AC-FT 100900000
WTR YR 1977 TOTAL 32578900 MEAN 89260 MAX 150000 MIN 45000 AC-FT 64620000

12454000 WHITE RIVER NEAR PLAIN, WA

LOCATION.--Lat 47°52'27", long 120°52'09", in NE¼NE¼ sec.5, T.27 N., R.16 E., Chelan County, Hydrologic Unit 17020011, Wenatchee National Forest, on left bank 200 ft (61 m) downstream from Forest Service bridge, 1.2 mi (1.9 km) downstream from Sears Creek, 12.5 mi (20.1 km) northwest of Plain, and at mile 6.4 (10.3 km).

DRAINAGE AREA.--150 mi² (388 km²).

PERIOD OF RECORD.--May 1911 to April 1912, May to September 1912 (monthly discharge only), July to August 1913, October 1913 to March 1914 (monthly discharge only), April to September 1914, August 1954 to current year. Published as "near Chiwaukum" 1911-14. Water temperatures October 1970 to June 1971.

REVISED RECORDS.--WSP 1316: 1914.

GAGE.--Water-stage recorder. Datum of gage is 1,881.92 ft (573.609 m) above mean sea level. May 1911 to September 1914, nonrecording gage at same site at different datum.

REMARKS.--Records excellent. No regulation or diversion.

AVERAGE DISCHARGE.--25 years (water years 1912, 1914, 1955-77), 817 ft³/s (23.14 m³/s), 73.97 in/yr (1,879 mm/yr), 591,900 acre-ft/yr (730 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,890 ft³/s (167 m³/s) June 17, 1974, gage height, 13.56 ft (4.133 m); maximum gage height, 13.87 ft (4.228 m) June 2, 1968; minimum daily discharge, 78 ft³/s (2.21 m³/s) Jan. 3-5, 1971.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft³/s (99.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 18	1330	*3,560	101	*10.53	3.210

Minimum discharge, 128 ft³/s (3.62 m³/s) Oct. 30, gage height, 2.57 ft (0.783 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	441	348	217	210	288	291	218	1320	1240	801	492	269
2	406	207	208	200	274	279	218	1550	971	727	520	257
3	374	181	200	190	256	277	230	1330	854	579	569	521
4	317	179	192	180	244	262	300	1060	1260	492	600	643
5	288	171	180	170	233	259	422	898	1340	446	567	522
6	275	161	175	160	224	262	572	794	2060	402	512	405
7	256	152	205	155	216	288	797	758	2740	402	532	342
8	250	165	229	150	210	300	979	778	2280	446	524	315
9	251	225	205	150	207	288	786	821	1470	502	527	276
10	282	200	185	155	221	274	680	932	1330	485	543	270
11	331	184	179	155	244	268	621	825	1360	544	530	270
12	286	166	175	160	541	259	597	731	1460	565	549	272
13	275	149	171	160	586	250	618	715	1460	488	565	284
14	255	137	165	160	386	241	562	684	1380	499	555	289
15	234	153	229	160	351	239	534	642	1340	544	541	250
16	221	382	366	167	345	230	509	611	1320	562	497	215
17	205	800	263	471	367	221	471	600	1450	537	482	192
18	193	546	271	2590	367	218	453	646	1570	492	476	176
19	171	376	234	1080	364	216	422	719	1630	443	460	298
20	165	307	217	746	354	207	405	766	1400	422	456	339
21	159	279	223	632	364	207	398	991	1210	464	448	355
22	153	263	210	551	357	216	453	921	1230	502	395	284
23	148	251	207	485	336	244	719	956	1070	481	368	277
24	150	314	189	439	318	230	1250	786	1020	474	378	285
25	177	393	201	404	318	221	1720	723	1090	506	471	258
26	175	275	372	384	297	224	1650	782	973	530	452	235
27	159	242	364	360	300	250	1220	680	903	551	302	218
28	155	256	288	339	309	236	1170	607	888	632	298	215
29	158	236	275	312	---	224	1260	579	837	558	695	226
30	136	226	256	303	---	224	1280	590	770	446	447	213
31	225	---	230	291	---	224	---	837	---	471	323	---
TOTAL	7271	7924	7081	12069	8877	7629	21514	25632	39906	15993	15074	8971
MEAN	235	264	228	389	317	246	717	827	1330	516	486	299
MAX	441	800	372	2590	586	300	1720	1550	2740	801	695	643
MIN	136	137	165	150	207	207	218	579	770	402	298	176
CFSM	1.57	1.76	1.52	2.59	2.11	1.64	4.78	5.51	8.87	3.44	3.24	1.99
IN.	1.80	1.97	1.76	2.99	2.20	1.89	5.34	6.36	9.90	3.97	3.74	2.22
AC-FT	14420	15720	14050	23940	17610	15130	42670	50840	79150	31720	29900	17790

CAL YR 1976 TOTAL 333420 MEAN 911 MAX 3570 MIN 136 CFSM 6.07 IN 82.69 AC-FT 661300
WTR YR 1977 TOTAL 177961 MEAN 488 MAX 2740 MIN 136 CFSM 3.25 IN 44.13 AC-FT 352900

12457000 WENATCHEE RIVER AT PLAIN, WA

LOCATION.--Lat 47°45'47", long 120°39'54", in NE¼SW¼ sec.12, T.26 N., R.17 E., Chelan County, Hydrologic Unit 17020011, on left bank 300 ft (91 m) downstream from county road bridge at Plain, 0.3 mi (0.5 km) downstream from Beaver Creek, 2.2 mi (3.5 km) downstream from Chiwawa River, 11.3 mi (18.2 km) north of Leavenworth, and at mile 46.2 (74.3 km).

DRAINAGE AREA.--591 mi² (1,531 km²).

PERIOD OF RECORD.--October 1910 to current year. Published as "near Leavenworth" 1910-31.

REVISED RECORDS.--WSP 482: 1911-14. WSP 1316: 1914(M), 1916(M), 1919(M), 1921-23(M), 1927(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,805 ft (550.2 m), from river-profile map. Prior to Jan. 8, 1932, nonrecording gages at site 0.2 mi (0.3 km) downstream at different datum.

REMARKS.--Records excellent, except those for period of no gage-height record, Feb. 16 to Apr. 1, which are good. Wenatchee Park Land and Irrigation Company diverts water from the Chiwawa River, above the station for irrigation of 1,400 acres (5.6 km²) near Plain. Natural regulation by Wenatchee Lake 8.0 mi (12.9 km) upstream.

AVERAGE DISCHARGE.--67 years, 2,254 ft³/s (63.83 m³/s), 51.79 in/yr (1,315 mm/yr), 1,633,000 acre-ft/yr (2,013 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,700 ft³/s (643 m³/s) May 29, 1948, gage height, 12.43 ft (3.789 m), from high-water mark in well; minimum, 168 ft³/s (4.76 m³/s) Nov. 30, 1952, gage height, 1.31 ft (0.399 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,530 ft³/s (185 m³/s) June 8, gage height, 6.55 ft (1.996 m); minimum, 475 ft³/s (13.5 m³/s) Oct. 24, gage height, 1.96 ft (0.596 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	854	875	712	818	882	1020	816	4140	2680	1620	838	795
2	814	770	693	764	860	980	809	4510	2820	1580	830	711
3	806	701	692	732	825	940	859	4580	2630	1450	845	767
4	767	660	679	701	804	900	868	4030	2870	1290	876	884
5	732	629	661	647	777	870	999	3420	3300	1140	937	1080
6	696	598	642	594	744	870	1250	2940	4030	1060	945	960
7	667	579	669	572	719	900	1680	2660	5570	983	891	861
8	646	567	766	561	707	1000	2360	2560	6210	968	868	788
9	627	584	861	566	695	1020	2420	2500	4940	983	838	725
10	620	590	747	561	744	1000	2240	2730	4000	976	830	676
11	665	583	724	572	853	960	2070	2770	3660	976	830	634
12	659	569	697	588	1140	920	1950	2530	3540	1020	830	606
13	642	551	679	600	1680	870	1940	2420	3540	1010	838	592
14	620	529	670	605	1480	820	1870	2350	3450	968	838	585
15	604	526	684	605	1310	800	1780	2230	3310	968	830	564
16	591	578	878	647	1200	800	1720	2130	3130	991	816	532
17	566	985	882	912	1200	770	1610	2030	3120	991	788	508
18	550	1570	898	2940	1210	730	1530	1990	3240	976	767	490
19	535	1300	868	4320	1200	720	1440	2070	3370	922	746	508
20	520	1100	825	3140	1170	710	1360	2140	3340	876	718	599
21	509	970	797	2420	1160	720	1330	2480	2950	861	725	725
22	498	899	777	1990	1150	740	1340	2660	2750	861	704	732
23	483	827	770	1700	1100	770	1640	2850	2560	868	648	711
24	482	811	725	1490	1070	800	2490	2700	2300	861	634	753
25	522	1090	725	1320	1040	790	4080	2450	2270	853	683	725
26	554	1040	975	1240	1030	770	5890	2410	2150	876	816	711
27	535	889	1380	1150	1010	870	4550	2290	1980	891	767	669
28	522	818	1230	1070	1040	870	4050	2120	1860	940	676	641
29	517	781	1100	991	---	860	4010	1970	1790	976	899	648
30	508	736	991	943	---	840	4060	1900	1670	914	1050	627
31	548	---	882	905	---	830	---	1880	---	853	922	---
TOTAL	18859	23696	25219	36664	28800	26460	64161	82440	95030	31502	25223	20807
MEAN	608	790	814	1183	1029	854	2139	2659	3168	1016	814	694
MAX	854	1570	1380	4320	1680	1020	5890	4580	6210	1620	1050	1080
MIN	482	526	642	561	695	710	809	1880	1670	853	634	490
CFSM	1.03	1.34	1.38	2.00	1.74	1.45	3.62	4.50	5.36	1.72	1.38	1.17
IN.	1.19	1.49	1.59	2.31	1.81	1.67	4.04	5.19	5.98	1.98	1.59	1.31
AC-FT	37410	47000	50020	72720	57120	52480	127300	163500	188500	62480	50030	41270

CAL YR 1976 TOTAL 963323 MEAN 2632 MAX 10800 MIN 482 CFSM 4.45 IN 60.64 AC-FT 1911000
WTR YR 1977 TOTAL 478861 MEAN 1312 MAX 6210 MIN 482 CFSM 2.22 IN 30.14 AC-FT 949800

12459000 WENATCHEE RIVER AT PESHASTIN, WA

LOCATION.--Lat 47°35'00", long 120°36'46", in SE¼SW¼ sec.8, T.24 N., R.18 E., Chelan County, Hydrologic Unit 17020011, on right bank, 1.0 mi (1.6 km) northwest of Peshastin, 3.5 mi (5.6 km) upstream from Peshastin Creek, 4.1 mi (6.6 km) downstream from Icicle Creek, and at mile 21.5 (34.6 km).

DRAINAGE AREA.--1,000 mi² (2,600 km²), approximately.

PERIOD OF RECORD.--October 1928 to February 1929 (monthly discharge only), March 1929 to current year.

REVISED RECORDS.--WSP 1316: 1929-32(M).

GAGE.--Water-stage recorder. Datum of gage is 1,028.04 ft (313.347 m) above mean sea level. Prior to Mar. 24, 1932, nonrecording gage at site 1.2 mi (1.9 km) downstream at different datum.

REMARKS.--Records excellent except those for period of no gage-height record, June 5 to July 29, which are good. Numerous diversions upstream for irrigation of an estimated 3,200 acres (13 km²) upstream from station. Diversion from Icicle Creek 5.7 mi (9.2 km) upstream from mouth is used for irrigation of a substantial part of the 2,000 acres (89 km²) irrigated downstream from station.

AVERAGE DISCHARGE.--49 years, 3,125 ft³/s (88.50 m³/s), 2,264,000 acre-ft/yr (2,790 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,300 ft³/s (915 m³/s) May 28, 1948, gage height, 15.88 ft (4.840 m); minimum, 183 ft³/s (5.18 m³/s) Oct. 14, 1939; minimum gage height, 1.24 ft (0.378 m) Nov. 1, 1952; minimum daily discharge, 270 ft³/s (7.65 m³/s) Oct. 2, 1929, Nov. 30, 1936, Dec. 1, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,010 ft³/s (255 m³/s) June 8, gage height, 7.70 ft (2.347 m) (from high-water mark in well); minimum, 579 ft³/s (16.4 m³/s) Sept. 19, gage height, 1.94 ft (0.591 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1150	1230	922	1080	1210	1360	1010	5630	3740	2050	967	991
2	1080	1120	890	1050	1200	1290	997	6100	3930	1980	963	850
3	1060	962	890	1030	1120	1240	999	6200	3660	1840	970	808
4	1030	890	890	991	1070	1190	1080	5450	3950	1660	999	1010
5	970	836	859	883	1030	1150	1260	4550	5000	1500	1090	1320
6	927	794	829	800	990	1130	1560	3900	6600	1410	1140	1170
7	881	752	851	770	951	1150	2120	3510	8600	1310	1050	1020
8	864	738	996	750	926	1310	3030	3360	9000	1280	1010	942
9	816	780	1080	740	917	1360	3180	3240	6800	1270	990	861
10	794	794	987	750	992	1350	2920	3490	6000	1260	972	787
11	824	773	938	760	1150	1260	2680	3620	5300	1250	963	736
12	845	752	898	780	1380	1200	2520	3270	5200	1290	953	705
13	814	718	867	800	2170	1140	2460	3130	5200	1270	957	685
14	789	687	851	800	1930	1070	2380	3070	5200	1210	963	669
15	760	675	844	810	1700	1050	2240	2890	4900	1200	948	655
16	739	712	1140	966	1570	1030	2180	2740	4500	1210	927	625
17	707	1170	1160	1170	1540	986	2050	2600	4400	1220	891	597
18	688	1950	1150	3520	1620	950	1930	2540	4700	1200	859	591
19	673	1760	1120	5880	1580	942	1830	2620	4800	1110	840	610
20	656	1490	1050	4220	1530	929	1730	2750	4800	1030	806	733
21	643	1300	1010	3250	1530	928	1680	3180	4200	1000	798	914
22	628	1200	984	2630	1530	959	1700	3530	3900	1000	794	1010
23	616	1110	974	2220	1500	1010	2040	3750	3600	1010	743	954
24	602	1060	932	1940	1390	1050	3200	3590	3200	1020	729	992
25	636	1360	988	1750	1390	1020	5460	3260	3100	1010	761	987
26	702	1440	1220	1670	1350	1000	6820	3230	2950	1000	942	947
27	696	1170	1840	1540	1320	1140	6060	3050	2700	1010	949	892
28	669	1090	1670	1450	1390	1140	5430	2790	2500	1070	825	851
29	656	1040	1480	1350	---	1110	5500	2600	2400	1140	898	857
30	650	970	1330	1270	---	1070	5530	2500	2150	1100	1330	885
31	675	---	1170	1210	---	1040	---	2550	---	1000	1200	---
TOTAL	24220	31303	32730	48830	37976	34554	83576	108690	136980	38910	29227	25654
MEAN	781	1043	1056	1575	1356	1115	2786	3506	4566	1255	943	855
MAX	1150	1950	1840	5880	2170	1360	6820	6200	9000	2050	1330	1320
MIN	602	675	829	740	917	928	997	2500	2150	1000	729	591
AC-FT	48040	62090	64920	96850	75330	68540	165800	215600	271700	77180	57970	50880

CAL YR 1976 TOTAL 1320343 MEAN 3629 MAX 13600 MIN 602 AC-FT 2635000
WTR YR 1977 TOTAL 632650 MEAN 1733 MAX 9000 MIN 591 AC-FT 1255000

12462500 WENATCHEE RIVER AT MONITOR, WA

LOCATION.--Lat 47°29'58", long 120°25'24", in NE¼SW¼ sec.11, T.23 N., R.19 E., Chelan County, Hydrologic Unit 17020011, on right bank 1.0 mi (1.6 km) north of Monitor, 3.5 mi (5.6 km) downstream from Mission Creek, and at mile 7.0 (11.3 km).

DRAINAGE AREA.--1,301 mi² (3,370 km²).

PERIOD OF RECORD.--August to November 1897, October 1962 to current year. Published as "near Wenatchee" 1897.

GAGE.--Water-stage recorder. Altitude of gage is 680 ft (207 m), from topographic map. Aug. 7 to Nov. 7, 1897, nonrecording gage 1 mi (1.6 km) downstream at different datum.

REMARKS.--Records excellent. No regulation. Diversions for irrigation of about 25,000 acres (100 km²) above station.

AVERAGE DISCHARGE.--15 years, 3,420 ft³/s (96.85 m³/s), 2,478,000 acre-ft/yr (3,060 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,200 ft³/s (827 m³/s) Dec. 4, 1975, gage height, 27.14 ft (8.272 m); minimum, 362 ft³/s (10.3 m³/s) Sept. 4, 5, 6, 1973, gage height, 16.98 ft (5.176 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,410 ft³/s (266 m³/s) June 8, gage height, 21.94 ft (6.687 m); minimum, 512 ft³/s (14.5 m³/s) Sept. 17, 18, gage height, 17.19 ft (5.240 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1130	1230	1080	1140	1280	1450	996	5780	3680	2000	832	925
2	1070	1250	985	1050	1280	1360	986	6230	4040	1950	823	785
3	1040	1070	978	1020	1190	1310	998	6410	3730	1830	823	698
4	1020	988	971	963	1140	1260	1080	5680	3920	1620	844	870
5	971	934	965	881	1110	1220	1280	4760	4840	1430	922	1200
6	930	888	911	775	1070	1200	1620	4060	5970	1200	994	1100
7	884	848	921	750	1020	1210	2230	3610	8120	1170	924	949
8	845	825	1040	750	993	1360	3180	3630	9020	1100	866	870
9	812	862	1140	760	987	1440	3350	3270	7210	1110	848	803
10	787	882	1080	780	1030	1420	3860	3490	5830	1120	826	716
11	801	860	1020	800	1210	1340	2790	3690	5330	1100	818	660
12	840	834	977	810	1390	1280	2620	3340	5150	1120	809	623
13	809	806	951	820	2250	1230	2530	3160	5150	1130	811	596
14	783	768	929	830	2070	1160	2490	3100	5110	1080	818	579
15	798	758	919	860	1810	1140	2330	2940	4850	1050	807	567
16	833	774	1120	910	1660	1120	2270	2790	4480	1060	787	542
17	805	1130	1240	1120	1620	1080	2130	2630	4390	1080	756	519
18	778	1970	1220	3250	1690	1040	2080	2550	4590	1080	723	514
19	764	1860	1210	6340	1670	1030	1880	2600	4740	1010	707	540
20	745	1600	1120	4610	1610	1010	1760	2740	4740	927	673	674
21	731	1410	1110	3510	1600	946	1690	3120	4190	884	659	826
22	716	1290	1080	2840	1610	930	1690	3560	3890	867	659	974
23	704	1200	1070	2410	1580	977	2000	3800	3550	882	617	938
24	688	1140	1010	2090	1470	1030	3110	3680	3130	889	585	969
25	711	1350	991	1850	1460	1000	5460	3290	3060	885	615	978
26	778	1560	1190	1760	1420	987	7080	3230	2910	879	774	952
27	791	1270	1930	1640	1390	1120	6340	3110	2680	887	843	900
28	755	1160	1790	1540	1460	1160	5630	2830	2490	916	725	871
29	742	1110	1580	1430	---	1120	5660	2620	2330	994	711	872
30	737	1060	1440	1340	---	1070	5700	2510	2130	965	1170	881
31	747	---	1270	1280	---	1020	---	2510	---	877	1120	---
TOTAL	25545	33687	35138	50909	40070	36020	85960	110520	135250	35172	24889	23891
MEAN	824	1123	1133	1642	1431	1162	2865	3565	4508	1135	803	796
MAX	1130	1970	1930	6340	2250	1450	7080	6410	9020	2000	1170	1200
MIN	688	758	911	750	987	930	986	2510	2130	867	585	514
AC-FT	50670	66820	69700	101000	79480	71450	170500	219200	268300	69760	49370	47390

CAL YR 1976 TOTAL 1424230 MEAN 3891 MAX 14800 MIN 688 AC-FT 2825000
WTR YR 1977 TOTAL 637031 MEAN 1745 MAX 9020 MIN 514 AC-FT 1264000

12462520 WENATCHEE RIVER AT WENATCHEE, WA

LOCATION.--Lat 47°27'32", long 120°20'07", in SE¼NW¼ sec.28, T.23 N., R.20 E., Chelan County, Hydrologic Unit 17020011, at bridge on U.S. Highway 2, 1.3 mi (2.1 km) north of Wenatchee, and at mile 1.1 (1.8 km).

DRAINAGE AREA.--1,327 mi² (3,437 km²).

PERIOD OF RECORD.--Water years, 1960-63, 1964-66 (partial-record station), 1967-70, 1972, 1975-76, Aug. 16 to Aug. 17, 1977.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance, and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, AUGUST 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM, .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
AUG											
16...	0800	790	73	7.2	19.0	1	9.1	100	--	38	29
16...	1100	800	60	--	21.5	--	10.5	120	--	--	--
16...	1400	790	68	7.4	23.0	1	10.5	125	--	<5	--
16...	1655	790	60	9.0	25.3	--	10.0	123	--	--	--
16...	2000	771	61	8.4	26.7	1	9.1	110	1300	86	--
16...	2245	771	72	8.7	23.1	--	8.3	98	--	--	--
17...	0200	771	73	7.2	20.7	1	8.2	93	B1600	60	--
17...	0450	762	79	7.3	20.5	--	8.3	93	--	--	--
17...	0800	762	--	7.6	20.1	--	9.7	108	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
AUG										
16...	6	6.2	3.2	7.9	1.9	28	0	23	2.0	4.1
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	24	0	20	1.5	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
AUG										
16...	13	.0	5.9	56	11	.15	.03	.18	.02	.00
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	6	.11	.10	.26	.01	.00
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--

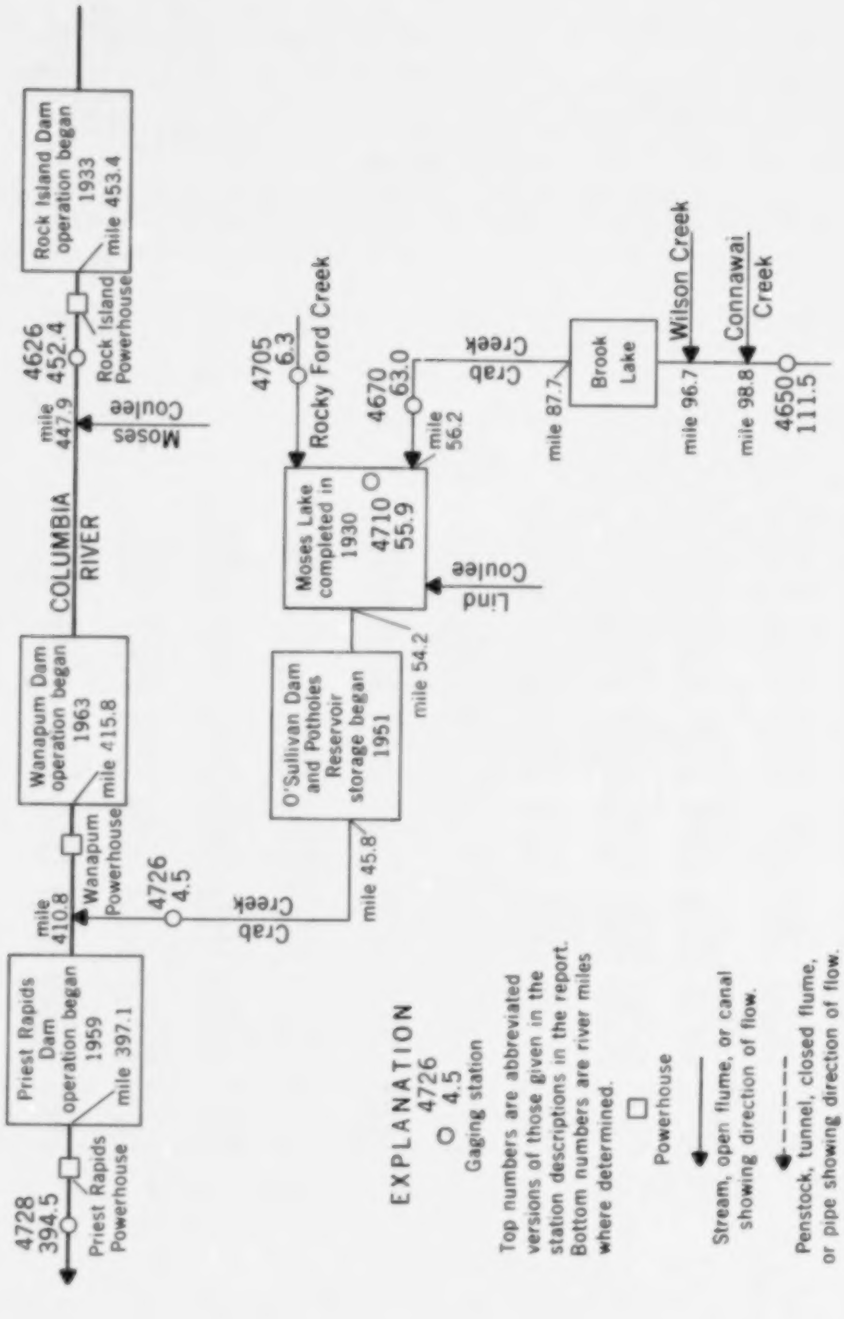
COLUMBIA RIVER
4728
394.5
Priest Rapids Powerhouse
Priest Rapids Dam operation began 1959
mile 397.1
mile 410.8
Wanapum Powerhouse
Wanapum Dam operation began 1963
mile 415.8
Moses Coulee
mile 447.9
4626
452.4
Rock Island Powerhouse
Rock Island Dam operation began 1933
mile 453.4
4726
4.5
Crab Creek
mile 45.8
O'Sullivan Dam and Potholes Reservoir storage began 1951
mile 54.2
Moses Lake completed in 1930
4710
55.9
Lind Coulee
4705
6.3
Rocky Ford Creek
4670
63.0
mile 56.2
Crab Creek
mile 87.7
Brook Lake
Wilson Creek
mile 96.7
Connawai Creek
mile 98.8
4650
111.5
EXPLANATION
4726
4.5
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.

Figure 13. Gaging stations in Columbia River basin from Rock Island Dam to Priest Rapids gage.

12462600 COLUMBIA RIVER BELOW ROCK ISLAND DAM, WA

LOCATION.--Lat 47°19'57", long 120°04'48", in NE¼NW¼ sec.9, T.21 N., R.22 E., Douglas County, Hydrologic Unit 17020010, on left bank 1.0 mi (1.6 km) downstream from Rock Island Dam, 2.0 mi (3.2 km) downstream from Rock Island Creek, 12 mi (19.3 km) southeast of Wenatchee, and at mile 452.4 (727.9 km).

DRAINAGE AREA.--89,400 mi² (231,500 km²), approximately.

PERIOD OF RECORD.--January to December 1910 (gage heights only), May 1913 to December 1916, October 1930 to current year. Published as "at Wenatchee" January 1910 to December 1916, and as "at Trinidad" October 1930 to May 1961. Chemical analyses October 1971 to September 1972, October 1974 to September 1976.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Jan. 1, 1916, nonrecording gage 1.2 mi (1.9 km) upstream from highway bridge at Wenatchee, at mile 466.3 (750.3 km), at datum 583 ft (177.7 m) above mean sea level, unadjusted. Jan. 1 to Dec. 31, 1916, nonrecording gage on pier of highway bridge at Wenatchee, at mile 465.1 (748.3 km), at datum 579.30 ft (176.571 m) above mean sea level, unadjusted. Oct. 1, 1930 to May 31, 1961, water-stage recorder 5.5 mi (8.8 km) southwest of Trinidad, at mile 441.7 (710.7 km), at datum 499.3 ft (152.19 m) above mean sea level (river-profile survey). Since May 21, 1963, auxiliary water-stage recorder 2.0 mi (3.2 km) downstream at same datum.

REMARKS.--Water-discharge records good. Flow regulated by nine major reservoirs and numerous small reservoirs and powerplants. Diversion by Feeder Canal for Columbia Basin project (see sta 12435500) and for irrigation of about 380,000 acres (1,540 km²) in the United States and an additional 35,000 acres (142 km²) in Canada.

AVERAGE DISCHARGE.--50 years (water years 1914-16, 1931-77), 122,100 ft³/s (3,458 m³/s), 88,460,000 acre-ft/yr (109,000 hm³/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft³/s (19,600 m³/s) June 12, 1948, gage height, 59.35 ft (18.090 m) site and datum then in use; minimum, 4,120 ft³/s (117 m³/s) Feb. 10, 1932, gage height, 11.40 ft (3.475 m), site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft³/s (21,000 m³/s), from floodmarks at Wenatchee.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 149,000 ft³/s (4,220 m³/s) Jan. 29; minimum daily, 45,700 ft³/s (1,290 m³/s) Apr. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100000	99700	110000	114000	116000	99300	89300	56900	114000	71000	88000	88600
2	107000	99100	104000	101000	123000	111000	65700	113000	133000	52800	93400	88800
3	93000	101000	101000	110000	118000	109000	45700	102000	104000	66600	95200	63900
4	102000	105000	96400	107000	105000	104000	70000	94900	70100	50300	81800	57700
5	101000	102000	84500	111000	113000	80500	63600	103000	50400	69900	85300	56800
6	99900	88800	105000	114000	89300	78000	74000	100000	79600	83100	75600	82500
7	102000	64300	102000	101000	114000	123000	73800	67000	75700	70800	60300	92100
8	100000	88200	87200	104000	89200	97800	64000	69900	77800	69300	81300	92600
9	105000	98700	90500	107000	86100	111000	68200	111000	76700	51700	101000	93600
10	89900	108000	94600	121000	81100	96500	51900	115000	72200	47300	90400	75000
11	97100	110000	83300	123000	87100	95100	64100	113000	66700	63700	93300	62800
12	109000	99700	84200	108000	72600	60700	71000	96700	56800	66900	93300	88000
13	113000	111000	106000	91500	67000	63100	70900	94700	79800	83400	80700	93000
14	104000	83400	105000	109000	92000	107000	76300	94600	91800	91300	65300	89800
15	105000	106000	96000	95700	89700	113000	80000	64700	85700	88500	87900	93500
16	119000	104000	101000	81300	90900	98100	63100	105000	108000	80100	91700	96900
17	98600	96800	104000	94700	95100	96700	52600	112000	106000	64900	87500	78000
18	107000	109000	105000	95400	90800	96000	86500	116000	82500	79600	73300	54500
19	105000	99800	94200	101000	68900	82200	85800	109000	70400	83400	79800	83200
20	101000	89100	113000	105000	57900	68000	87200	90400	89400	98900	70000	89700
21	109000	80300	110000	110000	103000	80100	91100	69700	87000	100000	57000	87900
22	113000	106000	111000	112000	99200	94300	87500	66200	90000	95300	87000	86400
23	103000	108000	101000	123000	117000	103000	69100	126000	72200	94100	72300	92400
24	89900	107000	107000	126000	101000	114000	48600	137000	76600	57600	72700	81000
25	103000	76700	81600	125000	115000	112000	82200	119000	68400	73500	76500	70900
26	95900	84100	58000	114000	83200	71800	75100	124000	65600	85500	60900	90700
27	113000	102000	85800	110000	70900	83700	72000	122000	84600	92700	67600	84000
28	116000	98400	118000	131000	97500	101000	66600	49100	84100	94100	57600	79000
29	108000	115000	110000	149000	---	69900	72200	51300	72500	93900	80000	74100
30	110000	113000	105000	136000	---	93700	64200	70000	68900	88000	76100	70900
31	96100	---	104000	121000	---	95500	---	108000	---	58700	89500	---
TOTAL	3215400	2954100	3058300	3459600	2633500	2928500	2134700	2959100	2448300	2372900	2463900	2430300
MEAN	103700	98470	98650	111600	94050	94470	71160	95450	81610	76550	79480	81010
MAX	119000	115000	118000	149000	123000	123000	91100	137000	133000	100000	101000	96900
MIN	89900	64300	58000	81300	57900	60700	45700	49100	50400	47300	57600	54500
AC-FT	6378000	5859000	6066000	6862000	5224000	5809000	4234000	5869000	4856000	4707000	4887000	4820000

CAL YR 1976 TOTAL 52426800 MEAN 143200 MAX 264000 MIN 52200 AC-FT 104000000
WTR YR 1977 TOTAL 33058600 MEAN 90570 MAX 149000 MIN 45700 AC-FT 65570000

12464670 CLEAR LAKE NEAR MEDICAL LAKE, WA

LOCATION.--Lat 47°32'30", long 117°41'21", in NW¼SW¼ sec.30, T.24 N., R.41 E., Spokane County, Hydrologic Unit 17020013, on north shore 2.2 mi (3.5 km) south of town of Medical Lake.

DRAINAGE AREA.--9.51 mi² (24.63 km²), including that of West Medical Lake.

PERIOD OF RECORD.--September 1958 to current year (fragmentary), chemical analyses April 1973 to October 1973.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Nonrecording gage. Datum of gage is 2,298.6 ft (700.61 m) above mean sea level (unadjusted).

REMARKS.--No known regulation. Some pumping for domestic use and irrigation. Gage heights to top of ice Jan. 3 to Feb. 11 and Feb. 25 to Mar. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 44.50 ft (13.564 m) Apr. 2, 1974; minimum observed, 38.74 ft (11.808 m) Oct. 8, 11, 18, 1968, Oct. 16, 19, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 41.98 ft (12.796 m) Oct. 1; minimum observed, 39.90 ft (12.162 m) Sept. 23, 27.

GAGE HEIGHT, IN FEET, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	41.98	---	---	---	41.70	41.76	41.90	---	41.66	41.36	---	---
2	---	41.76	---	---	---	---	---	---	---	---	40.64	40.10
3	---	---	41.68	---	---	---	---	41.78	41.60	---	---	---
4	---	---	---	41.66	41.70	41.80	---	---	---	---	---	---
5	41.96	41.76	---	---	---	---	41.89	---	---	41.20	40.56	---
6	---	---	---	---	---	---	---	41.76	---	---	---	40.06
7	---	---	41.68	41.66	---	---	---	---	41.62	---	---	---
8	41.92	---	---	---	41.68	41.84	41.88	---	---	41.13	40.51	---
9	---	41.76	---	---	---	---	---	---	---	---	40.48	40.02
10	---	---	41.66	---	---	---	---	---	41.60	---	---	---
11	---	---	---	41.66	41.68	41.88	---	41.72	---	---	---	---
12	41.84	41.74	---	---	---	---	41.86	---	---	41.00	---	---
13	---	---	---	---	---	---	---	41.70	---	---	---	40.00
14	41.84	---	41.62	41.66	---	---	---	---	41.60	---	---	---
15	---	---	---	---	41.71	41.88	41.84	---	---	41.00	---	---
16	---	41.70	---	---	---	---	---	---	---	---	40.34	39.94
17	---	---	41.62	---	---	---	---	41.66	41.78	---	---	---
18	---	---	---	41.70	41.72	41.88	---	---	---	---	---	---
19	41.78	41.70	---	---	---	---	---	---	---	40.88	40.28	---
20	---	---	---	---	---	---	41.80	41.68	---	---	---	39.96
21	---	---	41.63	41.70	---	---	---	---	41.52	---	---	---
22	41.78	---	---	---	41.74	41.88	41.80	---	---	40.80	---	---
23	---	41.70	---	---	---	---	---	---	---	---	40.10	39.90
24	---	---	41.62	---	---	---	---	41.66	41.46	---	---	---
25	---	---	---	41.70	41.72	41.90	---	---	---	---	---	---
26	41.76	41.70	---	---	---	---	41.78	41.70	---	40.70	40.10	---
27	---	---	---	---	---	---	---	---	---	---	---	39.90
28	---	---	41.64	41.70	---	---	---	---	41.30	---	---	---
29	41.72	---	---	---	---	41.90	41.76	---	---	40.70	---	---
30	---	41.68	---	---	---	---	---	---	---	---	40.14	39.92
31	---	---	41.64	---	---	---	---	---	---	---	---	---
MEAN	---	---	---	---	---	---	---	---	---	---	---	---
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---

12465000 CRAB CREEK AT IRBY, WA

LOCATION.--Lat 47°21'38", long 118°30'36", in NW¼NW¼ sec.31, T.22 N., R.32 E., Lincoln County, Hydrologic Unit 17020013, on right bank 8 ft (2.4 m) upstream from highway bridge at Irby, 5.4 mi (8.7 km) downstream from Lake Creek, 7.5 mi (12.1 km) west of Odessa, and at mile 111.5 (179.4 km).

DRAINAGE AREA.--1,042 mi² (2,699 km²).

PERIOD OF RECORD.--September 1942 to current year. Chemical analyses October 1961 to September 1962.

REVISED RECORDS.--WSP 1446: 1949-51. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,386.30 ft (422.544 m) above mean sea level.

REMARKS.--Records good except those for Oct. 1 to Dec. 20, when the control was leaking, which are fair. No regulation. Some diversion for irrigation above station.

AVERAGE DISCHARGE.--35 years, 76.7 ft³/s (2.172 m³/s), 55,570 acre-ft/yr (68.5 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,370 ft³/s (237 m³/s) Feb. 27, 1957, gage height, 11.94 ft (3.639 m); no flow Jan. 3, 8, 9, 15-22, 1969, and part of each day Aug. 23, 24, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.5 m³/s) and maximum(*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 11	0945	(a)		*2.44	0.744	Apr. 7	1500	*22	0.62	2.18	0.664

a Backwater from ice.

Minimum discharge, no flow part of each day Aug. 23, 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	3.5	3.5	5.0	8.0	15	21	14	9.0	4.1	2.6	1.4
2	4.0	3.5	3.5	4.7	8.0	15	21	15	8.6	3.0	2.4	1.1
3	3.5	3.5	3.5	4.7	10	16	21	16	8.6	3.3	1.7	1.1
4	3.5	3.5	3.5	4.4	10	16	21	14	8.0	3.0	1.1	1.3
5	3.5	3.5	3.5	4.1	9.5	16	21	14	8.1	3.5	.91	1.1
6	3.5	3.5	3.5	3.8	9.5	16	21	14	8.1	4.1	.82	1.1
7	3.5	3.5	3.5	3.8	11	17	21	14	8.1	3.6	.91	.91
8	3.5	3.5	3.5	3.5	11	17	21	14	7.6	4.1	1.3	.91
9	3.5	3.5	3.5	3.5	12	16	21	13	7.3	3.8	1.4	.73
10	3.5	3.5	3.5	3.2	13	17	20	13	6.9	3.0	1.5	.73
11	3.5	3.5	3.5	3.2	13	17	20	13	6.5	3.0	1.7	.91
12	3.5	3.5	3.5	3.8	13	18	20	12	6.5	3.5	1.5	.91
13	3.5	3.5	3.5	4.1	13	18	19	12	6.9	2.6	1.5	.65
14	3.5	3.5	3.5	4.4	13	18	18	11	6.9	2.0	1.4	.58
15	3.5	3.5	4.0	7.0	14	18	17	11	6.1	2.0	1.4	.65
16	3.5	3.5	4.0	8.0	14	18	15	11	6.1	2.6	1.4	.51
17	3.5	3.5	4.0	10	14	18	16	11	5.7	3.8	1.4	.73
18	3.5	3.5	4.4	18	14	18	16	11	5.7	3.5	1.4	.82
19	3.5	3.5	4.4	15	14	18	15	11	5.3	3.3	1.3	1.1
20	4.8	3.5	3.5	13	14	18	16	10	5.7	3.0	1.3	1.1
21	4.8	3.5	3.8	13	14	18	15	10	5.7	2.8	1.1	1.3
22	4.0	3.5	4.0	12	14	18	14	9.6	5.3	2.4	.82	1.3
23	4.0	3.5	4.4	11	15	19	14	9.6	5.0	2.6	.06	1.3
24	4.0	3.5	4.4	11	14	19	14	11	4.7	2.6	.34	1.5
25	3.5	3.5	4.4	10	14	19	14	9.0	3.5	2.4	.65	1.7
26	3.5	3.5	4.6	9.0	15	19	15	8.6	3.3	2.0	.91	1.7
27	3.5	3.5	5.0	9.0	15	19	15	9.6	4.4	2.6	1.0	1.4
28	3.5	3.5	5.0	8.0	15	19	15	9.6	3.8	2.2	1.4	1.5
29	3.5	3.5	5.0	9.0	---	19	15	9.0	3.8	2.2	1.5	1.5
30	3.5	3.5	5.3	8.0	---	19	14	9.0	4.4	2.4	1.5	1.9
31	3.5	---	5.3	7.5	---	20	---	9.0	---	2.6	1.5	---
TOTAL	116.2	105.0	124.5	234.7	354.0	548	526	358.0	186.2	95.0	39.72	33.44
MEAN	3.75	3.50	4.02	7.57	12.6	17.7	17.5	11.5	6.21	3.06	1.28	1.11
MAX	6.6	3.5	5.3	18	15	20	21	16	9.0	4.1	2.6	1.9
MIN	3.5	3.5	3.5	3.2	8.0	15	14	8.6	3.3	2.0	.06	.51
AC-FT	230	208	247	466	702	1090	1040	710	369	188	79	66

CAL YR 1976 TOTAL 29650.40 MEAN 81.0 MAX 1930 MIN 3.5 AC-FT 58810
WTR YR 1977 TOTAL 2720.76 MEAN 7.45 MAX 21 MIN .06 AC-FT 5400

12467000 CRAB CREEK NEAR MOSES LAKE, WA

LOCATION.--Lat 47°11'22", long 119°15'53", in NW¼NE¼ sec.35, T.20 N., R.28 E., Grant County, Hydrologic Unit 17020015, on left bank at downstream side of highway bridge, 3 mi (4.8 km) upstream from Parker Horn, 4 mi (6.4 km) north of town of Moses Lake, and at mile 63.0 (101.4 km).

DRAINAGE AREA.--2,228 mi² (5,771 km²), of which 219 mi² (567 km²) in the vicinity of Long Lake Reservoir is noncontributing.

PERIOD OF RECORD.--September 1942 to current year, chemical analyses October 1961 to September 1962.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,070.39 ft (326.255 m) above mean sea level (Bureau of Reclamation bench mark). Prior to July 18, 1956, at site 300 ft (91 m) upstream at same datum.

REMARKS.--Records excellent. Numerous small diversions for irrigation and domestic use above station. Most of natural flow from upper basin passes this station underground. No known regulation. Since 1952, return flow from irrigation on Columbia Basin project has increased runoff during summer months.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,400 ft³/s (295 m³/s), Feb. 28, 1957, gage height, 6.81 ft (2.076 m); no flow for several months each year prior to 1952, and part of each day Jan. 14, 15, 1953.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 116 ft³/s (3.28 m³/s) Aug. 30, gage height, 3.08 ft (0.939 m); minimum, 9.0 ft³/s (0.25 m³/s) Apr. 5, 6, 7, gage height, 1.57 ft (0.479 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	78	38	22	14	17	11	20	47	54	80	101
2	91	75	38	21	14	14	10	20	46	54	79	100
3	90	74	38	21	15	16	9.7	24	46	54	79	102
4	90	73	38	20	15	15	9.3	26	49	55	78	105
5	91	72	38	19	15	13	9.2	24	48	57	79	100
6	88	70	38	18	15	13	9.2	29	49	59	78	96
7	87	68	38	17	15	13	9.2	25	50	60	76	95
8	88	67	37	16	15	13	9.3	25	47	62	78	95
9	90	65	35	16	15	12	9.7	29	47	62	76	94
10	90	64	34	16	18	11	11	28	47	62	76	94
11	90	61	33	16	18	11	11	28	46	64	75	93
12	88	59	32	16	18	11	11	28	46	65	76	90
13	88	58	31	17	19	14	11	28	46	65	76	90
14	86	56	30	17	18	13	11	33	47	67	76	90
15	84	58	30	17	16	12	13	37	48	67	78	90
16	84	57	30	18	16	11	14	36	47	67	79	96
17	84	56	29	18	16	11	14	32	47	70	80	95
18	84	54	29	17	16	10	14	33	47	70	79	93
19	84	53	28	17	16	10	14	40	48	70	79	96
20	84	52	27	16	16	9.7	15	36	48	72	83	93
21	84	52	27	16	16	9.7	15	33	48	73	84	98
22	83	50	27	15	16	9.5	16	33	50	75	84	107
23	83	49	27	15	14	11	16	37	50	76	86	101
24	83	48	26	14	14	11	16	42	47	80	90	99
25	84	47	26	14	13	10	16	40	48	83	91	105
26	83	42	26	14	13	9.5	17	38	47	83	93	101
27	83	44	26	14	13	9.3	18	38	47	84	94	98
28	83	43	25	14	18	10	19	40	49	84	94	101
29	81	42	24	14	---	14	20	40	51	81	94	97
30	79	41	23	14	---	12	20	45	53	80	108	95
31	80	---	22	14	---	11	---	47	---	80	106	---
TOTAL	2656	1720	950	513	437	366.7	398.6	1010	1436	2135	2584	2904
MEAN	85.7	57.3	30.6	16.5	15.6	11.8	13.3	32.6	47.9	68.9	83.4	96.8
MAX	91	78	38	22	19	17	20	47	53	84	108	107
MIN	79	41	22	14	13	9.3	9.2	20	46	54	75	90
AC-FT	5270	3410	1880	1020	867	727	791	2000	2850	4230	5130	5760

CAL YR 1976 TOTAL 40436.0 MEAN 110 MAX 789 MIN 22 AC-FT 80200
WTR YR 1977 TOTAL 17110.3 MEAN 46.9 MAX 108 MIN 9.2 AC-FT 33940

12469500 LENORE LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat 47°30'52", long 119°30'06", in SE¼SW¼ sec.1, T.23 N., R.26 E., Grant County, Hydrologic Unit 17020014, on east shore 200 ft (61 m) downlake from outlet gate on Alkali Lake and 8.8 mi (14.2 km) north of town of Soap Lake.

DRAINAGE AREA.--367 mi² (951 km²), of which 281 mi² (728 km²) in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.--July 1936, March 1938 to December 1956 (fragmentary), January 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Dec. 20, 1956, nonrecording gages 800 ft (244 m) uplake at same datum.

REMARKS.--Records excellent except those for the period Oct. 21 to Dec. 9, which are good. Some diversion from tributaries for irrigation, and pumping into and out of lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,087.73 ft (331.540 m) June 12, 1953; minimum, 1,072.72 ft (326.965 m) Jan. 2, 1959 (affected by wind).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,092.2 ft (332.90 m), from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,080.27 ft (329.266 m) Apr. 25; minimum, 1,077.60 ft (328.542 m) Sept. 30.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1078.32	1077.96	1078.32	1078.89	1079.60	1079.60	1079.89	1080.13	1079.25	1078.71	1078.22	1077.93
2	1078.29	1077.96	1078.35	1078.91	1079.62	1079.59	1079.92	1080.13	1079.23	1078.65	1078.20	1077.93
3	1078.23	1077.98	1078.37	1078.93	1079.64	1079.59	1079.94	1080.13	1079.16	1078.61	1078.19	1077.94
4	1078.17	1077.99	1078.38	1078.95	1079.67	1079.59	1079.96	1080.12	1079.18	1078.56	1078.18	1077.94
5	1078.16	1078.00	1078.40	1078.97	1079.69	1079.58	1079.98	1080.10	1079.16	1078.51	1078.22	1077.94
6	1078.14	1078.01	1078.43	1078.99	1079.72	1079.58	1080.00	1080.07	1079.14	1078.47	1078.21	1077.93
7	1078.12	1078.03	1078.45	1079.01	1079.74	1079.59	1080.02	1080.04	1079.12	1078.43	1078.20	1077.91
8	1078.09	1078.04	1078.48	1079.03	1079.76	1079.58	1080.04	1080.01	1079.07	1078.35	1078.17	1077.90
9	1078.07	1078.06	1078.43	1079.06	1079.76	1079.56	1080.05	1079.98	1079.04	1078.36	1078.15	1077.90
10	1078.05	1078.06	1078.45	1079.07	1079.76	1079.53	1080.06	1079.96	1079.04	1078.36	1078.12	1077.90
11	1078.01	1078.07	1078.46	1079.09	1079.77	1079.52	1080.07	1079.94	1079.05	1078.38	1078.13	1077.88
12	1077.99	1078.08	1078.49	1079.13	1079.77	1079.52	1080.08	1079.89	1079.06	1078.35	1078.12	1077.87
13	1077.96	1078.11	1078.50	1079.16	1079.75	1079.53	1080.10	1079.85	1079.05	1078.36	1078.12	1077.87
14	1077.91	1078.12	1078.52	1079.17	1079.74	1079.53	1080.09	1079.81	1079.10	1078.36	1078.08	1077.87
15	1077.90	1078.14	1078.54	1079.19	1079.73	1079.56	1080.11	1079.77	1079.11	1078.35	1078.08	1077.86
16	1077.86	1078.15	1078.56	1079.22	1079.72	1079.58	1080.12	1079.74	1079.11	1078.34	1078.08	1077.85
17	1077.82	1078.16	1078.58	1079.25	1079.70	1079.61	1080.12	1079.71	1079.12	1078.34	1078.07	1077.85
18	1077.81	1078.17	1078.60	1079.26	1079.68	1079.64	1080.11	1079.69	1079.13	1078.32	1078.06	1077.85
19	1077.82	1078.16	1078.61	1079.28	1079.67	1079.66	1080.13	1079.67	1079.14	1078.30	1078.05	1077.86
20	1077.83	1078.20	1078.63	1079.31	1079.65	1079.69	1080.13	1079.63	1079.13	1078.29	1078.02	1077.86
21	1077.84	1078.22	1078.65	1079.34	1079.64	1079.72	1080.15	1079.60	1079.11	1078.30	1078.02	1077.84
22	1077.85	1078.23	1078.67	1079.36	1079.62	1079.73	1080.16	1079.55	1079.09	1078.29	1078.01	1077.85
23	1077.85	1078.25	1078.70	1079.37	1079.61	1079.77	1080.12	1079.55	1079.06	1078.27	1077.99	1077.84
24	1077.86	1078.27	1078.72	1079.40	1079.60	1079.79	1080.20	1079.53	1079.02	1078.26	1077.99	1077.82
25	1077.88	1078.26	1078.74	1079.43	1079.58	1079.81	1080.23	1079.50	1078.98	1078.27	1077.98	1077.78
26	1077.89	1078.22	1078.76	1079.45	1079.57	1079.83	1080.23	1079.46	1078.92	1078.27	1077.97	1077.75
27	1077.90	1078.27	1078.78	1079.48	1079.55	1079.84	1080.22	1079.42	1078.87	1078.27	1077.96	1077.71
28	1077.91	1078.29	1078.80	1079.50	1079.59	1079.85	1080.20	1079.38	1078.82	1078.26	1077.96	1077.69
29	1077.92	1078.29	1078.82	1079.52	---	1079.85	1080.18	1079.33	1078.77	1078.24	1077.94	1077.66
30	1077.93	1078.31	1078.85	1079.55	---	1079.88	1080.15	1079.27	1078.75	1078.22	1077.94	1077.62
31	1077.95	---	1078.87	1079.57	---	1079.89	---	1079.26	---	1078.22	1077.94	---
MEAN	1077.98	1078.14	1078.58	1079.22	1079.68	1079.66	1080.09	1079.75	1079.06	1078.36	1078.08	1077.85
MAX	1078.32	1078.31	1078.87	1079.57	1079.77	1079.89	1080.23	1080.13	1079.25	1078.71	1078.22	1077.94
MIN	1077.81	1077.96	1078.32	1078.89	1079.55	1079.52	1079.89	1079.26	1078.75	1078.22	1077.94	1077.62

WTR YR 1977 MEAN 1078.86 MAX 1080.23 MIN 1077.62

12470000 SOAP LAKE NEAR SOAP LAKE, WA

LOCATION.--Lat 47°24'11", long 119°29'11", in NW¼SW¼ sec.18, T.22 N., R.27 E., Grant County, Hydrologic Unit 17020014, on east shore 0.9 mi (1.4 km) north of town of Soap Lake.

DRAINAGE AREA.--415 mi² (1,070 km²), of which 281 mi² (728 km²) in the vicinity of Banks Lake is noncontributing.

PERIOD OF RECORD.-May to August 1936, March 1938 to February 1957 (fragmentary), March 1957 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Feb. 4, 1953, nonrecording gage at site 0.2 mi (0.3 km) uplake. Feb. 4, 1953, to June 8, 1954, nonrecording gage at site 1.5 mi (2.4 km) uplake and June 9, 1954, to June 21, 1957, water-stage recorder at site 0.2 mi (0.3 km) uplake.

REMARKS.--Some diversion from tributaries for irrigation. Water pumped from lake to reduce or limit high stages.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation observed, 1,079.20 ft (328.940 m) Jan. 28, 1953; minimum observed, 1,070.87 ft (326.401 m) Oct. 21, 1939.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum elevation known, 1,083.1 ft (330.13 m), from well-defined alkali line at gage, date unknown.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,074.67 ft (327.559 m) Mar. 26; minimum, 1,073.22 ft (327.117 m) Sept. 19, 20, 22, 23.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1073.87	1073.82	1074.07	1074.22	1074.37	1074.56	1074.61	1074.48	1074.37	1074.05	1073.62	1073.31
2	1073.88	1073.82	1074.07	1074.22	1074.38	1074.57	1074.60	1074.48	1074.37	1074.00	1073.61	1073.31
3	1073.85	1073.83	1074.08	1074.22	1074.38	1074.59	1074.60	1074.49	1074.37	1073.98	1073.61	1073.31
4	1073.83	1073.86	1074.08	1074.23	1074.39	1074.59	1074.60	1074.51	1074.38	1073.96	1073.60	1073.32
5	1073.83	1073.88	1074.08	1074.22	1074.39	1074.60	1074.60	1074.49	1074.38	1073.93	1073.63	1073.32
6	1073.83	1073.90	1074.08	1074.23	1074.40	1074.60	1074.61	1074.48	1074.39	1073.91	1073.62	1073.31
7	1073.83	1073.91	1074.09	1074.23	1074.40	1074.60	1074.61	1074.48	1074.39	1073.91	1073.61	1073.31
8	1073.83	1073.93	1074.10	1074.23	1074.41	1074.61	1074.61	1074.48	1074.37	1073.90	1073.59	1073.28
9	1073.83	1073.94	1074.10	1074.24	1074.42	1074.61	1074.60	1074.48	1074.35	1073.88	1073.57	1073.28
10	1073.83	1073.95	1074.10	1074.24	1074.41	1074.61	1074.60	1074.48	1074.33	1073.86	1073.55	1073.28
11	1073.82	1073.97	1074.11	1074.25	1074.43	1074.61	1074.59	1074.48	1074.33	1073.86	1073.54	1073.28
12	1073.82	1073.98	1074.12	1074.27	1074.44	1074.62	1074.59	1074.47	1074.33	1073.84	1073.54	1073.27
13	1073.82	1073.99	1074.12	1074.27	1074.44	1074.63	1074.59	1074.46	1074.32	1073.82	1073.53	1073.27
14	1073.81	1073.99	1074.14	1074.28	1074.44	1074.63	1074.57	1074.45	1074.31	1073.81	1073.51	1073.26
15	1073.80	1074.00	1074.14	1074.29	1074.45	1074.64	1074.56	1074.44	1074.30	1073.81	1073.50	1073.24
16	1073.80	1074.02	1074.14	1074.29	1074.45	1074.64	1074.56	1074.43	1074.29	1073.79	1073.49	1073.24
17	1073.78	1074.02	1074.14	1074.30	1074.46	1074.63	1074.55	1074.42	1074.28	1073.78	1073.49	1073.24
18	1073.77	1074.04	1074.15	1074.30	1074.46	1074.63	1074.53	1074.43	1074.28	1073.76	1073.48	1073.24
19	1073.77	1074.05	1074.16	1074.31	1074.47	1074.63	1074.52	1074.43	1074.28	1073.74	1073.46	1073.24
20	1073.77	1074.06	1074.16	1074.32	1074.47	1074.63	1074.51	1074.42	1074.26	1073.73	1073.45	1073.24
21	1073.77	1074.06	1074.16	1074.32	1074.48	1074.63	1074.51	1074.42	1074.24	1073.73	1073.45	1073.24
22	1073.78	1074.07	1074.17	1074.33	1074.49	1074.63	1074.51	1074.40	1074.22	1073.72	1073.42	1073.23
23	1073.78	1074.08	1074.18	1074.33	1074.50	1074.64	1074.51	1074.41	1074.20	1073.70	1073.40	1073.24
24	1073.78	1074.08	1074.18	1074.33	1074.49	1074.64	1074.51	1074.41	1074.18	1073.69	1073.40	1073.25
25	1073.79	1074.08	1074.18	1074.34	1074.49	1074.63	1074.51	1074.41	1074.17	1073.69	1073.39	1073.26
26	1073.79	1074.07	1074.20	1074.34	1074.50	1074.63	1074.51	1074.40	1074.14	1073.69	1073.38	1073.27
27	1073.79	1074.07	1074.20	1074.35	1074.51	1074.63	1074.50	1074.38	1074.12	1073.69	1073.35	1073.27
28	1073.80	1074.07	1074.20	1074.35	1074.54	1074.62	1074.50	1074.37	1074.10	1073.68	1073.34	1073.29
29	1073.80	1074.06	1074.21	1074.36	---	1074.62	1074.50	1074.36	1074.05	1073.65	1073.32	1073.30
30	1073.80	1074.07	1074.21	1074.37	---	1074.62	1074.49	1074.35	1074.05	1073.63	1073.33	1073.30
31	1073.81	---	1074.22	1074.37	---	1074.61	---	1074.35	---	1073.62	1073.32	---
MEAN	1073.81	1073.99	1074.14	1074.29	1074.45	1074.62	1074.56	1074.44	1074.27	1073.80	1073.49	1073.27
MAX	1073.88	1074.08	1074.22	1074.37	1074.54	1074.64	1074.61	1074.51	1074.39	1074.05	1073.63	1073.32
MIN	1073.77	1073.82	1074.07	1074.22	1074.37	1074.56	1074.49	1074.35	1074.05	1073.62	1073.32	1073.23

CAL YR 1976 MEAN 1074.55 MAX 1075.24 MIN 1073.77
WTR YR 1977 MEAN 1074.09 MAX 1074.64 MIN 1073.23

12470500 ROCKY FORD CREEK NEAR EPHRATA, WA

LOCATION.--Lat 47°18'46", long 119°26'40", in SW¼SW¼ sec.16, T.21 N., R.27 E., Grant County, Hydrologic Unit 17020015, on right bank 1.4 mi (2.3 km) downstream from source at Rocky Ford Springs, 5.0 mi (8.0 km) east of Ephrata, and 6.3 mi (10.1 km) upstream from mouth at Moses Lake.

DRAINAGE AREA.--458 mi² (1,186 km²), of which 446 mi² (1,155 km²) in vicinity of Banks and Soap Lakes is noncontributing.

PERIOD OF RECORD.--June 1909 to April 1910, July to December 1911, August 1942 to current year. Prior to January 1910, published as Upper Crab Creek near Ephrata.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,068.51 ft (325.682 m) above mean sea level (Bureau of Reclamation bench mark). Prior to Jan. 1, 1912, nonrecording gages at sites 4.5 mi (7.2 km) to 5.5 mi (8.8 km) downstream at different datums. Aug. 19, 1942, to May 23, 1945, water-stage recorder at site 3.5 mi (5.6 km) downstream at datum 5.37 ft (1.637 m) lower. May 23, 1945 to June 15, 1977, water-stage recorder at site 0.2 mi (0.3 km) downstream at datum 3.53 ft (1.106 m) lower.

REMARKS.--Records excellent. Slight regulation by fish hatchery 1.5 mi (2.4 km) upstream.

AVERAGE DISCHARGE.--35 years (water years 1943-77), 79.4 ft³/s (2.249 m³/s), 57,530 acre-ft/yr (70.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 212 ft³/s (6.00 m³/s) Apr. 15-18, 1956, gage height, 3.58 ft (1.091 m) datum then in use; minimum observed, 20 ft³/s (0.57 m³/s) Aug. 13-18, 1911.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 97 ft³/s (2.75 m³/s) Oct. 4, gage height, old site, 2.53 ft (0.771 m), new site 6.16 ft (1.878 m); minimum daily discharge, 48 ft³/s (1.36 m³/s) May 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	88	78	69	60	54	50	50	55	66	66	70
2	94	88	78	69	60	53	50	50	55	66	67	71
3	94	87	78	69	60	54	51	50	56	67	68	69
4	94	87	78	69	60	53	50	50	57	67	67	69
5	94	86	78	68	59	53	50	50	57	67	66	70
6	93	86	78	67	60	53	50	50	56	67	66	69
7	93	86	77	67	59	53	50	50	57	69	67	71
8	93	85	77	67	59	53	51	50	56	69	68	71
9	93	85	76	67	59	53	50	50	57	69	68	70
10	92	85	76	66	58	52	50	50	58	70	68	71
11	92	85	75	66	58	52	50	49	58	71	69	70
12	92	84	75	66	58	52	50	49	58	72	69	70
13	92	84	75	66	58	52	49	49	59	70	69	71
14	92	83	74	66	57	52	50	49	60	70	69	71
15	92	83	74	66	57	52	49	48	59	72	69	72
16	91	82	74	65	57	52	50	49	58	72	70	72
17	91	82	74	65	56	52	50	49	58	72	70	71
18	91	82	73	65	56	52	50	49	58	71	71	72
19	91	82	73	63	56	51	50	50	58	70	72	72
20	90	82	72	64	56	51	50	50	60	69	73	72
21	91	82	72	63	55	51	49	51	63	69	71	72
22	91	82	72	63	55	51	49	51	63	69	69	72
23	90	81	72	63	55	51	49	51	63	69	69	72
24	90	81	72	63	55	51	50	52	64	69	71	71
25	90	81	72	62	55	51	50	51	64	69	71	72
26	90	80	71	62	55	50	50	51	64	68	70	71
27	90	80	71	61	55	50	50	52	64	67	69	71
28	90	79	71	61	55	50	50	52	64	68	71	71
29	89	79	70	61	---	50	50	53	64	68	72	71
30	89	79	70	61	---	51	50	53	65	67	71	71
31	89	---	70	60	---	51	---	53	---	67	69	---
TOTAL	2837	2496	2296	2010	1603	1606	1497	1561	1788	2136	2145	2128
MEAN	91.5	83.2	74.1	64.8	57.3	51.8	49.9	50.4	59.6	68.9	69.2	70.9
MAX	94	88	78	69	60	54	51	53	65	72	73	72
MIN	89	79	70	60	55	50	49	48	55	66	66	69
AC-FT	5630	4950	4550	3990	3180	3190	2970	3100	3550	4240	4250	4220

CAL YR 1976 TOTAL 30876 MEAN 84.4 MAX 101 MIN 69 AC-FT 61240
WTR YR 1977 TOTAL 24103 MEAN 66.0 MAX 94 MIN 48 AC-FT 47810

12471000 MOSES LAKE AT MOSES LAKE, WA

LOCATION.--Lat 47°06'11", long 119°19'02", in SW¼SW¼ sec.28, T.19 N., R.28 E., Grant County, Hydrologic Unit 17020015, on east shore 35 ft (11 m) north of U.S. Highway 10 and Interstate 90, 1.7 mi (2.7 km) upstream from outlet, 2.7 mi (4.3 km) southwest of town of Moses Lake, and at mile 55.9 (89.9 km).

DRAINAGE AREA.--3,080 mi² (7,977 km²), of which 665 mi² (1,722 km²) is noncontributing.

PERIOD OF RECORD.--June 1909 to September 1914 and November 1936 to September 1945 (fragmentary), October 1945 to current year. Published as "at Neppel" 1912-14.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Apr. 3, 1910, nonrecording gage at site 0.6 mi (1.0 km) northeast at different datum. Apr. 3, 1910, to Sept. 30, 1914, and Nov. 19, 1936, to Nov. 24, 1944, nonrecording gages at site 2.8 mi (4.5 km) northeast at Parker Horn at various datums. Oct. 30, 1945, to Mar. 14, 1955, water-stage recorder at site near west shore on downstream side of bridge on U.S. Highway 10 at present datum.

REMARKS.--Elevation controlled between 1,046 (318.8 m) and 1,048 ft (319.4 m) by two outlet structures at south end of lake. Many small diversions for irrigation.

EXTREMES FOR PERIOD OF RECORD.-- Maximum elevation, 1,048.29 ft (319.519 m) Mar. 10, 1950; minimum observed, 1,038.17 ft (316.434 m) Aug. 27, 1910.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,047.10 ft (319.156 m) Apr. 1; minimum, 1,044.16 ft (318.260 m) Feb. 1, 2.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1046.52	1045.42	1044.49	1044.29	1044.17	1045.20	1047.03	1046.59	1046.99	1046.59	1046.66	1046.81
2	1046.51	1045.40	1044.48	1044.28	1044.17	1045.23	1046.96	1046.57	1046.91	1046.57	1046.67	1046.77
3	1046.49	1045.35	1044.47	1044.28	1044.18	1045.29	1046.88	1046.64	1046.86	1046.55	1046.68	1046.80
4	1046.49	1045.33	1044.46	1044.27	1044.20	1045.32	1046.87	1046.70	1046.88	1046.54	1046.69	1046.84
5	1046.48	1045.31	1044.45	1044.26	1044.22	1045.36	1046.92	1046.73	1046.90	1046.54	1046.69	1046.87
6	1046.48	1045.28	1044.44	1044.26	1044.23	1045.39	1046.95	1046.75	1046.91	1046.53	1046.69	1046.89
7	1046.48	1045.24	1044.44	1044.25	1044.24	1045.40	1046.98	1046.72	1046.87	1046.54	1046.69	1046.91
8	1046.47	1045.20	1044.43	1044.24	1044.26	1045.44	1046.99	1046.71	1046.80	1046.55	1046.70	1046.89
9	1046.47	1045.16	1044.42	1044.24	1044.31	1045.48	1047.00	1046.70	1046.78	1046.55	1046.71	1046.83
10	1046.48	1045.11	1044.42	1044.23	1044.36	1045.52	1047.02	1046.69	1046.77	1046.54	1046.71	1046.72
11	1046.47	1045.06	1044.41	1044.23	1044.41	1045.54	1047.04	1046.67	1046.77	1046.55	1046.71	1046.62
12	1046.47	1045.00	1044.40	1044.23	1044.46	1045.57	1047.06	1046.68	1046.76	1046.55	1046.71	1046.54
13	1046.46	1044.96	1044.40	1044.23	1044.51	1045.61	1047.05	1046.69	1046.75	1046.54	1046.72	1046.58
14	1046.46	1044.91	1044.38	1044.22	1044.57	1045.63	1047.00	1046.69	1046.75	1046.55	1046.75	1046.63
15	1046.43	1044.87	1044.38	1044.22	1044.61	1045.67	1046.99	1046.69	1046.76	1046.56	1046.77	1046.68
16	1046.43	1044.84	1044.37	1044.22	1044.65	1045.71	1046.97	1046.69	1046.75	1046.57	1046.78	1046.72
17	1046.42	1044.81	1044.37	1044.21	1044.70	1045.73	1046.95	1046.70	1046.75	1046.56	1046.79	1046.77
18	1046.37	1044.78	1044.36	1044.21	1044.74	1045.75	1046.96	1046.70	1046.75	1046.55	1046.83	1046.81
19	1046.19	1044.75	1044.35	1044.21	1044.79	1045.88	1046.94	1046.70	1046.74	1046.56	1046.85	1046.86
20	1046.02	1044.72	1044.34	1044.21	1044.83	1046.00	1046.93	1046.70	1046.72	1046.58	1046.86	1046.90
21	1045.87	1044.69	1044.34	1044.20	1044.88	1046.12	1046.93	1046.69	1046.70	1046.58	1046.90	1046.93
22	1045.78	1044.67	1044.34	1044.20	1044.91	1046.28	1046.93	1046.69	1046.70	1046.59	1046.92	1046.96
23	1045.65	1044.65	1044.34	1044.20	1044.95	1046.32	1046.90	1046.71	1046.69	1046.60	1046.94	1046.99
24	1045.55	1044.63	1044.33	1044.19	1044.99	1046.44	1046.88	1046.73	1046.68	1046.60	1047.00	1046.98
25	1045.47	1044.62	1044.33	1044.19	1045.02	1046.55	1046.84	1046.80	1046.67	1046.61	1046.93	1046.95
26	1045.38	1044.60	1044.32	1044.19	1045.06	1046.63	1046.82	1046.86	1046.65	1046.63	1046.92	1046.92
27	1045.33	1044.55	1044.32	1044.18	1045.10	1046.75	1046.80	1046.92	1046.63	1046.64	1046.89	1046.89
28	1045.40	1044.54	1044.32	1044.18	1045.15	1046.81	1046.78	1046.94	1046.62	1046.65	1046.87	1046.87
29	1045.48	1044.52	1044.31	1044.18	---	1046.88	1046.71	1046.94	1046.60	1046.64	1046.86	1046.84
30	1045.49	1044.51	1044.30	1044.17	---	1046.94	1046.65	1046.96	1046.59	1046.64	1046.90	1046.81
31	1045.47	---	1044.30	1044.17	---	1047.01	---	1046.99	---	1046.65	1046.85	---
MEAN	1046.11	1044.92	1044.38	1044.22	1044.60	1045.92	1046.92	1046.74	1046.76	1046.58	1046.79	1046.82
MAX	1046.52	1045.42	1044.49	1044.29	1045.15	1047.01	1047.06	1046.99	1046.99	1046.65	1047.00	1046.99
MIN	1045.33	1044.51	1044.30	1044.17	1044.17	1045.20	1046.65	1046.57	1046.59	1046.53	1046.66	1046.54

CAL YR 1976 MEAN 1045.77 MAX 1046.88 MIN 1044.22
WTR YR 1977 MEAN 1045.90 MAX 1047.06 MIN 1044.17

12472600 CRAB CREEK NEAR BEVERLY, WA

LOCATION.--Lat 46°49'48", long 119°49'48", in NW¼SW¼ sec.33, T.16 N., R.24 E., Grant County, Hydrologic Unit 17020015, on right bank 4.9 mi (7.9 km) east of Beverly and at mile 4.5 (7.2 km).

DRAINAGE AREA.--4,842 mi² (12,541 km²), of which 665 mi² (1,722 km²) in the vicinity of Soap Lake is noncontributing.

PERIOD OF RECORD.--February 1959 to current year. Water-quality records 1959-72, 1975-76, water temperatures August 1959 to September 1962, July 1968 to August 1970, published as 12472500 "near Smyrna" for period 1959-63.

PEVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 500 ft (152 m), from topographic map.

REMARKS.--Records good. Many diversions above station for irrigation. Flow largely regulated by Potholes Reservoir 41.3 mi (66.5 km) upstream. A major portion of flow is return flows from parts of the Columbia Basin project.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 346 ft³/s (9.80 m³/s) Nov. 15, 1973; maximum gage height, 5.97 ft (1.820 m) Feb. 16, 1969, backwater from ice; minimum discharge, 10 ft³/s (0.28 m³/s) Jan. 10, 1963, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 343 ft³/s (9.71 m³/s) Sept. 29, gage height, 4.90 ft (1.494 m); minimum, 101 ft³/s (2.86 m³/s) July 2, gage height, 2.29 ft (0.698 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	268	300	188	170	163	177	208	165	227	113	208	323
2	269	300	186	165	162	173	201	174	229	112	207	323
3	265	290	184	160	163	167	197	181	233	126	209	325
4	270	280	187	155	163	172	192	193	238	129	202	329
5	270	265	186	140	164	170	184	204	243	139	200	329
6	273	250	188	130	164	160	170	210	245	150	204	332
7	278	235	190	120	165	161	157	217	245	160	209	333
8	281	225	192	120	167	166	146	228	230	165	215	331
9	280	215	200	125	167	165	145	229	222	162	219	329
10	276	210	204	125	173	169	152	225	186	171	206	316
11	277	205	196	125	198	174	164	227	168	171	200	304
12	280	200	191	125	196	172	180	225	165	174	197	297
13	280	195	189	130	188	173	168	219	165	183	202	295
14	277	195	188	130	182	175	181	204	166	186	197	291
15	273	195	187	130	174	180	178	196	172	183	197	287
16	268	195	187	132	168	179	169	193	181	182	202	287
17	268	200	185	134	168	175	182	197	185	182	203	283
18	273	205	181	137	173	177	176	210	188	187	205	281
19	277	210	180	138	169	176	193	207	188	199	214	286
20	281	205	174	163	164	178	204	202	180	210	226	290
21	286	195	175	173	166	183	210	187	175	209	231	293
22	290	190	176	171	167	195	213	196	170	206	232	288
23	294	193	180	169	165	189	211	195	165	203	238	290
24	296	202	183	167	157	197	208	210	155	201	250	302
25	296	200	181	165	151	199	191	219	140	206	254	313
26	298	201	179	166	149	192	194	215	130	212	255	327
27	300	192	190	166	150	185	188	214	135	213	261	333
28	300	191	188	165	165	202	183	219	130	202	271	339
29	300	189	183	164	---	193	179	216	127	208	276	342
30	300	187	178	163	---	185	172	220	121	213	296	339
31	300	---	174	163	---	193	---	224	---	211	314	---
TOTAL	8742	6515	5750	4586	4699	5542	5496	6421	5504	5566	7000	9337
MEAN	282	217	185	148	168	179	183	207	183	180	226	311
MAX	300	300	204	173	198	202	213	229	245	213	314	342
MIN	265	187	174	120	149	160	145	165	121	112	197	281
AC-FT	17340	12920	11410	9100	9320	10990	10900	12740	10920	11040	13880	18520

CAL YR 1976 TOTAL 79546 MEAN 217 MAX 300 MIN 136 AC-FT 157800
WTR YR 1977 TOTAL 75158 MEAN 206 MAX 342 MIN 112 AC-FT 149100

12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA

LOCATION.--Lat 46°37'44", long 119°51'49", in SE¼NW¼ sec.7, T.13 N., R.24 E., Grant County, Hydrologic Unit 17020016, on left bank 2.6 mi (4.2 km) downstream from Priest Rapids Dam, 14.7 mi (23.7 km) south of Beverly, and at mile 394.5 (634.8 km).

DRAINAGE AREA.--96,000 mi² (249,000 km²), approximately.

PERIOD OF RECORD.--January 1917 to current year. January 1917 to September 1930, at site 3.4 mi (5.5 km) downstream, published as "at Vernita." October 1930 to July 27, 1959, at site 46.5 mi (74.8 km) upstream, published as "at Trinidad."

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Oct. 1, 1930, nonrecording gages at site 3.4 mi (5.5 km) downstream at datum 388.7 ft (118.48 m) above mean sea level, unadjusted. Oct. 1, 1930, to July 27, 1959, water-stage recorder at site 46.5 mi (74.8 km) upstream at datum 499.3 ft (152.19 m) above mean sea level (river-profile survey).

REMARKS.--Records excellent. Diversions for irrigation of about 500,000 acres (2,020 km²) above station. Flow regulated by 10 major reservoirs and numerous smaller reservoirs and powerplants.

AVERAGE DISCHARGE.--60 years, 120,400 ft³/s (3,410 m³/s), 87,230,000 acre-ft/yr (108,000 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft³/s (19,600 m³/s) June 12, 1948, gage height, 59.35 ft (18.090 m), site and datum then in use; minimum, 4,120 ft³/s (117 m³/s) Feb. 10, 1932, gage height, 11.40 ft (3.475 m) site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft³/s (21,000 m³/s), based on information obtained at other points.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 192,000 ft³/s (5,440 m³/s) May 9, elevation, 411.08 ft (125.297 m); minimum, 35,500 ft³/s (1,010 m³/s) July 2, elevation, 396.25 ft (120.777 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99800	100000	127000	109000	118000	126000	93200	53500	122000	74600	82200	84700
2	101000	104000	90300	102000	123000	109000	70100	117000	127000	62700	80800	97300
3	96100	100000	84600	106000	130000	111000	48800	108000	98600	45100	99800	62900
4	114000	107000	91700	131000	110000	116000	68300	90100	59300	38900	83500	55900
5	99700	99300	79800	118000	109000	74900	65400	106000	43100	68600	83200	47900
6	108000	87200	101000	112000	88900	77600	76100	104000	77600	82500	61400	85000
7	102000	62500	99900	108000	118000	117000	62200	69000	81400	90500	56000	89800
8	101000	84100	83000	97800	92900	115000	67700	42100	69300	71200	89900	90900
9	104000	98200	88400	93000	86000	115000	55500	107000	77100	43600	91500	91300
10	91600	108000	92700	111000	85600	114000	63300	126000	79800	38400	71400	61900
11	107000	111000	76600	126000	88300	104000	55800	125000	51800	60700	91900	59200
12	114000	109000	80400	114000	77200	55700	69600	105000	52000	64000	87200	98400
13	121000	103000	109000	86400	72600	51700	73100	86700	84100	79900	85100	92900
14	115000	81600	97000	108000	91500	113000	75200	92800	83200	91400	56500	89300
15	100000	102000	92900	97700	103000	109000	67700	52700	81600	83600	94100	86900
16	108000	111000	100000	83600	86600	108000	73900	99400	99900	77000	91400	88400
17	101000	88000	111000	93600	104000	98100	48400	110000	109000	53100	85200	84700
18	109000	111000	104000	97500	97500	99700	76000	119000	66100	90800	73400	46000
19	116000	93900	96200	105000	66800	80500	86700	116000	68300	83200	85900	79400
20	106000	86900	108000	108000	59300	69900	84400	95400	86200	90400	65500	87600
21	103000	76700	111000	114000	116000	80600	91700	67500	94300	89500	49700	88100
22	113000	103000	118000	114000	105000	96800	86200	61100	87100	93000	95600	82700
23	102000	104000	99800	127000	116000	102000	64900	121000	60200	72100	73600	92300
24	89700	105000	101000	130000	112000	113000	50600	139000	81000	43200	83200	92300
25	116000	73900	82600	132000	119000	123000	79100	118000	66000	81700	75600	63800
26	93100	80100	54900	135000	82600	82600	72500	128000	60000	81800	78500	87000
27	115000	96300	87900	111000	71100	76300	70300	129000	92400	88600	58300	81100
28	122000	93500	115000	127000	106000	106000	64900	43600	77300	94500	59800	81100
29	113000	112000	112000	146000	---	96700	68800	44500	69500	82800	87400	74200
30	118000	115000	107000	141000	---	95200	62100	71400	58300	81900	77500	76800
31	72000	---	116000	127000	---	97600	---	119000	---	56200	92500	---
TOTAL	3271000	2907200	3018100	3513600	2735900	3034900	2084500	2966800	2364300	2227500	2447600	2399800
MEAN	105500	96910	97360	113300	97710	97900	69480	95700	78810	71850	78950	79990
MAX	122000	115000	127000	146000	130000	126000	93200	139000	127000	94500	99800	98400
MIN	72000	62500	54900	83600	59300	51700	48400	42100	43100	38400	49700	46000
AC-FT	6488000	5766000	5986000	6969000	5427000	6020000	4135000	5885000	4690000	4418000	4855000	4760000

CAL YR 1976 TOTAL 51888000 MEAN 141800 MAX 243000 MIN 39300 AC-FT 102900000
WTR YR 1977 TOTAL 32971200 MEAN 90330 MAX 146000 MIN 38400 AC-FT 65400000

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS DAM, WA

LOCATION.--Lat 46°38'34", long 119°43'54", in NW¼SE¼ sec.6, T.13 N., R.25 E., Grant County, Hydrologic Unit 17020016, at State Highway 24 Vernita Bridge crossing, 9.0 mi (14.5 km) downstream from Priest Rapids Dam, and at mile 388.1 (624.5 km).

DRAINAGE AREA.--96,000 mi² (248,600 km²), approximately.

PERIOD OF RECORD.--Water years 1962-63, 1972, 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1974 to current year.

INSTRUMENTATION.--Temperature recorder since July 1974.

REMARKS.--October 1971 to September 1972, at site 6.4 mi (10.3 km) upstream, published as 12472800 "below Priest Rapids Dam." Prior to October 1971 published as 12472800 "at Vernita Ferry."

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 20.5°C Aug. 16-21, 1977; minimum, 1.5°C Feb. 8-10, 1975.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 20.5°C Aug.16-21; minimum, 2.5°C Feb. 5-11.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	17.5	17.0	17.0	13.0	13.0	13.0	8.5	8.5	8.5	6.0	5.5	5.5
2	17.0	17.0	17.0	13.0	13.0	13.0	8.5	8.0	8.5	5.5	5.0	5.5
3	17.0	16.5	16.5	13.0	13.0	13.0	8.0	8.0	8.0	5.0	5.0	5.0
4	16.5	16.0	16.0	13.0	13.0	13.0	8.0	7.5	8.0	5.0	5.0	5.0
5	16.0	16.0	16.0	13.0	13.0	13.0	8.0	7.5	8.0	5.0	5.0	5.0
6	16.0	16.0	16.0	13.0	13.0	13.0	7.5	7.5	7.5	5.0	4.5	4.5
7	16.0	16.0	16.0	13.0	12.5	12.5	7.5	7.5	7.5	4.5	4.5	4.5
8	16.0	15.5	16.0	12.5	12.5	12.5	8.0	7.5	7.5	4.5	4.5	4.5
9	16.0	15.5	16.0	12.5	12.5	12.5	7.5	7.5	7.5	4.5	4.0	4.0
10	16.0	15.5	16.0	12.5	12.5	12.5	7.5	7.5	7.5	4.0	4.0	4.0
11	15.5	15.5	15.5	12.5	12.5	12.5	7.5	7.5	7.5	4.0	4.0	4.0
12	15.5	15.5	15.5	12.5	12.5	12.5	7.5	7.5	7.5	4.0	4.0	4.0
13	15.5	15.5	15.5	12.5	12.0	12.0	7.5	7.5	7.5	4.0	3.5	3.5
14	15.5	15.0	15.5	12.0	12.0	12.0	7.5	7.5	7.5	3.5	3.5	3.5
15	15.5	15.0	15.0	12.0	11.5	12.0	7.5	7.5	7.5	3.5	3.5	3.5
16	15.0	15.0	15.0	---	---	---	7.5	7.0	7.5	3.5	3.5	3.5
17	15.0	14.5	15.0	---	---	---	7.5	7.0	7.0	3.5	3.5	3.5
18	14.5	14.5	14.5	---	---	---	7.5	7.5	7.5	3.5	3.5	3.5
19	14.5	14.0	14.5	---	---	---	7.5	7.0	7.0	3.5	3.5	3.5
20	14.5	14.0	14.0	---	---	---	7.0	7.0	7.0	3.5	3.5	3.5
21	14.0	14.0	14.0	---	---	---	7.0	7.0	7.0	3.5	3.5	3.5
22	14.0	13.5	14.0	---	---	---	7.0	7.0	7.0	3.5	3.5	3.5
23	13.5	13.5	13.5	---	---	---	7.0	7.0	7.0	3.5	3.5	3.5
24	13.5	13.5	13.5	10.0	10.0	10.0	6.5	6.5	6.5	3.5	3.5	3.5
25	13.5	13.5	13.5	10.0	9.5	9.5	6.5	6.5	6.5	3.5	3.5	3.5
26	13.5	13.5	13.5	9.5	9.0	9.5	6.5	6.5	6.5	3.5	3.5	3.5
27	13.5	13.0	13.5	9.0	9.0	9.0	6.5	6.5	6.5	3.5	3.5	3.5
28	13.0	13.0	13.0	9.0	9.0	9.0	6.5	6.5	6.5	3.5	3.5	3.5
29	13.0	13.0	13.0	9.0	8.5	9.0	6.5	6.0	6.5	3.0	3.0	3.0
30	13.0	13.0	13.0	8.5	8.5	8.5	6.0	6.0	6.0	3.0	3.0	3.0
31	13.0	13.0	13.0	---	---	---	6.0	6.0	6.0	3.0	3.0	3.0
MONTH	17.5	13.0	15.0	13.0	8.5	11.5	8.5	6.0	7.0	6.0	3.0	4.0

12472900 COLUMBIA RIVER AT VERNITA BRIDGE, NEAR PRIEST RAPIDS, DAM, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.0	3.0	3.0	3.5	3.5	3.5	5.5	5.0	5.5	10.5	10.0	10.0
2	3.0	3.0	3.0	3.5	3.5	3.5	5.5	5.5	5.5	10.5	10.0	10.0
3	3.0	3.0	3.0	3.5	3.5	3.5	6.5	5.5	6.0	10.0	9.5	10.0
4	3.0	3.0	3.0	3.5	3.5	3.5	6.5	6.0	6.0	9.5	9.5	9.5
5	2.5	2.5	2.5	4.0	3.5	3.5	7.0	6.5	6.5	9.5	9.5	9.5
6	2.5	2.5	2.5	4.0	3.5	4.0	7.0	6.5	6.5	9.5	9.5	9.5
7	2.5	2.5	2.5	4.0	4.0	4.0	7.5	6.5	7.0	10.0	9.5	9.5
8	2.5	2.5	2.5	4.0	4.0	4.0	7.0	7.0	7.0	10.5	10.0	10.0
9	2.5	2.5	2.5	4.0	4.0	4.0	7.0	7.0	7.0	11.0	10.0	10.5
10	3.0	2.5	2.5	4.0	4.0	4.0	7.5	7.0	7.0	10.5	10.0	10.5
11	3.0	2.5	3.0	4.0	4.0	4.0	7.5	7.0	7.5	10.0	10.0	10.0
12	3.0	3.0	3.0	4.5	4.0	4.0	7.5	7.5	7.5	10.0	9.5	10.0
13	3.0	3.0	3.0	4.5	4.0	4.0	8.0	7.5	7.5	10.5	10.0	10.0
14	3.0	3.0	3.0	4.0	4.0	4.0	8.0	7.5	7.5	10.0	9.5	10.0
15	3.0	3.0	3.0	4.5	4.0	4.0	8.0	7.5	8.0	10.5	10.0	10.0
16	3.0	3.0	3.0	4.5	4.0	4.0	8.0	7.5	8.0	10.5	10.0	10.5
17	3.5	3.0	3.0	4.0	4.0	4.0	8.0	7.5	8.0	10.5	10.0	10.5
18	3.5	3.0	3.5	4.5	4.0	4.0	8.0	8.0	8.0	10.5	10.5	10.5
19	3.5	3.5	3.5	4.5	4.0	4.5	8.0	7.5	8.0	11.0	10.5	10.5
20	3.5	3.5	3.5	4.5	4.5	4.5	8.0	7.5	8.0	11.0	10.5	11.0
21	3.5	3.5	3.5	4.5	4.5	4.5	8.5	8.0	8.0	11.5	11.0	11.0
22	3.5	3.5	3.5	5.0	4.5	5.0	8.5	8.0	8.5	12.0	11.0	11.5
23	3.5	3.0	3.5	5.0	5.0	5.0	9.0	8.5	9.0	12.0	11.5	11.5
24	3.5	3.0	3.5	5.0	5.0	5.0	9.5	9.0	9.0	11.5	11.5	11.5
25	3.5	3.0	3.5	5.0	5.0	5.0	9.5	9.0	9.5	12.0	11.5	11.5
26	3.5	3.0	3.0	5.5	5.0	5.0	9.5	9.0	9.0	12.0	11.5	11.5
27	3.5	3.0	3.5	5.5	5.0	5.5	9.5	9.0	9.5	12.0	11.5	11.5
28	3.5	3.5	3.5	5.5	5.0	5.0	10.0	9.0	9.5	12.0	11.5	12.0
29	---	---	---	5.0	5.0	5.0	10.0	9.5	10.0	12.5	11.5	12.0
30	---	---	---	5.5	5.0	5.0	10.0	9.5	10.0	12.0	12.0	12.0
31	---	---	---	5.5	5.5	5.5	---	---	---	12.5	12.0	12.0
MONTH	3.5	2.5	3.0	5.5	3.5	4.5	10.0	5.0	8.0	12.5	9.5	10.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.0	12.0	12.0	17.0	16.5	16.5	18.5	17.5	18.0	18.5	18.0	18.5
2	12.0	11.5	12.0	17.0	16.5	16.5	18.5	18.0	18.0	18.5	18.0	18.5
3	12.5	12.0	12.0	17.0	16.5	16.5	18.5	18.0	18.0	18.5	18.0	18.0
4	12.5	12.0	12.5	16.5	16.0	16.5	19.0	18.0	18.5	18.5	18.0	18.0
5	13.5	12.5	13.0	16.5	16.0	16.0	19.0	18.5	18.5	18.5	18.0	18.5
6	13.5	13.0	13.0	16.0	15.5	16.0	19.0	18.5	18.5	18.5	18.0	18.0
7	14.0	13.5	14.0	16.5	15.5	16.0	19.0	18.5	18.5	18.0	18.0	18.0
8	14.0	13.5	14.0	16.5	16.0	16.5	19.0	19.0	19.0	18.0	17.5	18.0
9	14.0	13.5	14.0	16.5	16.0	16.5	19.0	18.5	19.0	18.0	17.5	18.0
10	14.0	13.5	13.5	16.5	16.0	16.0	19.5	19.0	19.0	18.5	18.0	18.0
11	14.0	14.0	14.0	16.5	16.5	16.5	19.5	19.0	19.5	18.5	18.0	18.5
12	14.5	14.0	14.5	16.5	16.0	16.0	20.0	19.5	19.5	18.5	18.5	18.5
13	15.0	14.5	14.5	16.5	16.0	16.0	20.0	19.5	20.0	19.0	18.5	18.5
14	15.0	14.5	15.0	16.5	16.0	16.0	20.0	19.5	20.0	18.5	18.5	18.5
15	15.0	14.5	15.0	16.5	16.0	16.5	20.0	19.5	20.0	18.5	18.0	18.0
16	15.0	14.5	15.0	17.0	16.5	16.5	20.5	19.5	20.0	18.0	18.0	18.0
17	15.5	15.0	15.5	16.5	16.5	16.5	20.5	20.0	20.0	18.0	18.0	18.0
18	16.0	15.5	15.5	16.5	16.5	16.5	20.5	20.0	20.5	18.0	18.0	18.0
19	16.5	16.0	16.0	16.5	16.0	16.0	20.5	20.0	20.0	18.0	18.0	18.0
20	16.5	16.0	16.0	16.5	15.5	16.0	20.5	20.0	20.5	18.0	18.0	18.0
21	16.5	16.0	16.0	17.0	16.5	16.5	20.5	20.0	20.5	18.0	17.5	18.0
22	16.5	16.0	16.0	17.0	16.5	17.0	20.0	20.0	20.0	17.5	17.5	17.5
23	16.5	16.0	16.0	17.0	16.5	17.0	20.0	19.5	20.0	17.5	17.5	17.5
24	16.5	16.0	16.5	17.0	17.0	17.0	20.0	19.5	19.5	17.5	17.5	17.5
25	16.5	16.0	16.5	17.5	17.0	17.0	19.5	19.0	19.5	17.5	17.0	17.5
26	16.5	16.0	16.5	17.5	17.0	17.0	19.5	19.5	19.5	17.0	17.0	17.0
27	16.5	16.0	16.5	17.5	17.0	17.5	19.5	19.0	19.0	17.0	17.0	17.0
28	16.5	16.0	16.5	17.5	17.5	17.5	19.0	19.0	19.0	17.0	17.0	17.0
29	16.5	16.0	16.5	17.5	17.5	17.5	19.0	18.5	19.0	17.0	17.0	17.0
30	16.5	16.5	16.5	17.5	17.0	17.0	18.5	18.5	18.5	17.0	16.5	16.5
31	---	---	---	17.5	17.0	17.5	18.5	18.0	18.5	---	---	---
MONTH	16.5	11.5	15.0	17.5	15.5	16.5	20.5	17.5	19.5	19.0	16.5	18.0
YEAR	20.5	2.5	11.0									

12473520 COLUMBIA RIVER AT RICHLAND, WA

LOCATION.--Lat 46°18'46", long 119°15'28", in NW¼NW¼ sec.36, T.10 N., R.28 E., Benton County, Hydrologic Unit 17020016, at city of Richland pumping plant, 4.8 mi (7.7 km) upstream from Yakima River.

DRAINAGE AREA.--96,900 mi² (251,000 km²), approximately.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1974 to current year.

INSTRUMENTATION.--Water-temperature recorder with probe located at city of Richland pumping plant pier near right bank from July 1974 until January 1977. Since January 1977, recorder probe located 200 ft (61 m) streamward from plant.

REMARKS.--Water temperatures given in the table below were checked for accuracy of representing the average in the river cross-section by obtaining four thermal load measurements between September 1974 and September 1975. These indicated variations between the monitors recorded temperature in use from July 1974 until January 1977, and the average (discharge weighted) stream temperature as follows:

Date	Time	Monitor recorded Temperature °C	Average stream temperature (Discharge weighted) °C	Error in Monitor Record
Sept. 11, 1974	1400	18.9	18.3	+.06
Nov. 15	1115	11.4	11.5	-0.1
Apr. 8, 1975	1130	5.5	5.0	+0.5
Sept. 10	1130	18.8	18.7	+0.1

Probe installed January 1977 reflects mean river water temperature.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 21.5°C Aug. 17-20, 1977; minimum, 2.0°C Feb. 5, 6, 10, 21, 22, 1975, Feb. 4-8, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 21.5 °C Aug. 17-20; minimum, 2.5°C Jan. 30, 31, Feb. 1-9.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	18.0	17.0	17.5	13.5	13.0	13.0	8.0	7.5	7.5	5.0	5.0	5.0
2	17.5	16.5	17.0	13.0	12.5	13.0	8.0	7.5	7.5	5.0	4.5	5.0
3	16.5	16.0	16.5	13.0	12.5	13.0	7.5	7.0	7.5	5.0	5.0	5.0
4	16.5	15.5	16.0	13.0	12.5	13.0	7.5	7.0	7.5	5.0	4.5	5.0
5	16.0	15.5	15.5	13.0	13.0	13.0	7.0	7.0	7.0	4.5	4.0	4.0
6	16.5	15.5	16.0	13.0	12.5	12.5	7.5	7.0	7.0	4.0	3.5	4.0
7	16.5	15.5	16.0	13.0	12.5	13.0	7.5	7.0	7.5	4.0	3.5	3.5
8	16.5	15.5	16.0	13.0	12.5	13.0	7.5	7.0	7.5	3.5	3.5	3.5
9	16.0	15.5	16.0	12.5	12.5	12.5	7.5	7.0	7.5	3.5	3.0	3.0
10	16.5	15.5	16.0	12.5	12.0	12.5	7.5	7.0	7.0	3.0	3.0	3.0
11	16.5	15.5	16.0	12.0	12.0	12.0	7.5	7.0	7.0	3.0	3.0	3.0
12	16.0	15.0	15.5	12.0	11.5	12.0	7.0	7.0	7.0	3.5	3.0	3.0
13	16.0	15.0	15.5	11.5	11.5	11.5	7.0	7.0	7.0	3.5	3.0	3.0
14	15.5	15.0	15.0	11.5	11.5	11.5	7.0	7.0	7.0	3.5	3.0	3.5
15	15.0	14.5	15.0	11.5	11.0	11.5	7.0	7.0	7.0	3.5	3.0	3.0
16	15.0	14.5	14.5	12.0	11.5	11.5	7.0	7.0	7.0	3.5	3.0	3.5
17	15.0	14.0	14.5	12.0	11.5	11.5	7.0	6.5	7.0	3.5	3.5	3.5
18	14.5	13.5	14.0	11.5	11.0	11.5	6.5	6.5	6.5	---	---	---
19	14.0	13.5	14.0	11.0	10.5	10.5	6.5	6.5	6.5	4.0	4.0	4.0
20	14.5	13.5	14.0	10.5	10.0	10.5	6.5	6.5	6.5	4.0	3.5	4.0
21	14.0	13.5	14.0	10.5	10.0	10.0	6.5	6.5	6.5	4.0	4.0	4.0
22	14.0	13.5	13.5	10.0	9.5	10.0	6.5	6.5	6.5	4.0	3.5	3.5
23	13.5	13.0	13.5	10.0	9.5	9.5	6.5	6.5	6.5	3.5	3.5	3.5
24	13.5	13.0	13.5	9.5	9.5	9.5	6.5	6.0	6.5	3.5	3.5	3.5
25	13.5	13.0	13.0	9.5	9.0	9.5	6.5	6.0	6.0	3.5	3.5	3.5
26	13.5	13.0	13.5	9.0	8.0	8.5	6.5	6.5	6.5	3.5	3.0	3.0
27	13.5	13.0	13.0	8.0	7.5	8.0	7.0	6.5	6.5	3.0	3.0	3.0
28	13.0	13.0	13.0	8.0	8.0	8.0	6.5	6.0	6.5	3.0	3.0	3.0
29	13.0	12.5	13.0	8.0	7.5	8.0	6.0	6.0	6.0	3.0	3.0	3.0
30	13.0	12.5	12.5	8.0	7.5	8.0	6.0	5.5	6.0	3.0	2.5	3.0
31	13.0	12.5	12.5	---	---	---	5.5	5.0	5.5	3.0	2.5	2.5
MONTH	18.0	12.5	14.5	13.5	7.5	11.0	8.0	5.0	7.0	5.0	2.5	3.5

12473520 COLUMBIA RIVER AT RICHLAND, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.0	2.5	2.5	4.0	3.5	3.5	6.5	6.0	6.0	11.5	11.0	11.0
2	3.0	2.5	2.5	4.0	3.5	3.5	6.5	6.0	6.5	11.5	11.0	11.5
3	3.0	2.5	2.5	4.0	4.0	4.0	7.5	6.5	7.0	11.0	10.5	10.5
4	2.5	2.5	2.5	4.0	3.5	4.0	8.5	7.5	8.0	10.5	9.5	10.0
5	3.0	2.5	3.0	4.5	4.0	4.0	8.5	7.5	8.0	10.5	9.5	10.0
6	3.0	2.5	3.0	4.5	4.5	4.5	8.5	8.0	8.0	10.5	9.5	10.0
7	3.0	2.5	3.0	4.5	4.5	4.5	8.5	7.5	8.0	10.5	9.5	10.0
8	3.0	2.5	3.0	4.5	4.0	4.5	9.0	8.5	8.5	11.5	10.5	11.0
9	3.0	2.5	3.0	4.5	4.5	4.5	8.5	8.0	8.0	13.0	11.5	12.0
10	4.0	3.0	3.5	4.5	4.0	4.5	8.5	8.0	8.5	12.0	11.0	11.5
11	3.5	3.5	3.5	4.5	4.0	4.5	9.0	8.5	8.5	11.5	10.5	11.0
12	4.5	3.5	4.0	4.5	4.5	4.5	9.0	8.5	9.0	11.0	10.5	11.0
13	4.0	3.5	4.0	5.0	4.5	5.0	9.0	8.5	9.0	11.5	11.0	11.0
14	4.0	3.5	3.5	5.0	4.5	4.5	9.0	8.0	8.5	11.5	11.0	11.0
15	3.5	3.5	3.5	5.0	4.0	4.5	9.0	8.5	8.5	11.0	10.5	11.0
16	4.0	3.5	3.5	5.0	4.5	4.5	9.5	9.0	9.0	11.5	11.0	11.5
17	4.0	3.5	3.5	5.0	4.5	4.5	9.0	8.5	9.0	11.5	10.5	11.0
18	4.0	3.5	4.0	5.0	4.5	5.0	9.5	9.0	9.0	11.5	10.5	11.0
19	4.0	3.5	4.0	5.0	4.5	5.0	9.0	8.5	8.5	12.0	11.0	11.5
20	4.0	4.0	4.0	5.0	4.5	5.0	9.0	8.5	9.0	12.5	11.0	12.0
21	4.0	4.0	4.0	5.5	5.0	5.0	9.0	8.5	9.0	13.0	11.5	12.5
22	4.0	3.5	4.0	6.0	5.0	5.5	10.0	9.0	9.5	13.0	12.5	13.0
23	4.0	3.5	3.5	6.0	5.5	5.5	10.0	9.5	9.5	13.0	12.5	13.0
24	4.0	3.5	3.5	6.0	5.0	5.5	10.5	10.0	10.0	12.5	11.5	12.0
25	4.0	3.5	3.5	6.0	5.0	5.5	11.0	10.5	10.5	13.0	11.5	12.0
26	4.0	3.0	3.5	6.5	5.5	6.0	10.5	10.0	10.5	13.0	12.0	12.5
27	4.5	4.0	4.0	6.5	6.0	6.0	11.0	10.0	10.5	12.5	12.0	12.0
28	4.5	4.0	4.0	6.0	5.5	6.0	11.0	10.0	10.5	13.0	12.0	12.5
29	---	---	---	6.0	5.5	6.0	11.0	10.5	11.0	14.0	12.5	13.0
30	---	---	---	6.5	5.5	6.0	11.0	10.5	11.0	14.0	13.5	13.5
31	---	---	---	6.5	6.0	6.0	---	---	---	14.0	13.0	13.5
MONTH	4.5	2.5	3.5	6.5	3.5	5.0	11.0	6.0	9.0	14.0	9.5	11.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	13.0	13.0	18.0	17.5	17.5	19.0	18.5	18.5	19.0	18.0	18.5
2	13.5	12.0	12.5	17.5	17.0	17.5	19.5	18.5	19.0	19.0	18.0	18.5
3	13.0	12.5	13.0	18.0	17.0	17.5	19.5	18.5	19.0	19.0	18.0	18.5
4	13.5	13.0	13.0	17.5	17.0	17.0	19.5	18.5	19.0	19.0	18.5	19.0
5	15.0	13.5	14.0	17.5	16.5	17.0	20.0	19.0	19.5	19.0	18.5	19.0
6	16.5	15.0	15.5	17.0	16.5	16.5	20.0	19.0	19.5	19.0	18.5	19.0
7	16.0	15.0	15.0	17.5	16.0	17.0	20.0	19.5	19.5	19.0	18.0	18.5
8	16.0	15.0	15.5	17.0	16.5	16.5	20.0	19.5	20.0	18.5	17.5	18.0
9	15.5	14.5	15.0	17.5	17.0	17.5	20.0	19.0	19.5	18.5	17.5	18.0
10	15.5	14.5	15.0	18.0	17.0	17.5	20.0	19.0	19.5	18.5	18.0	18.5
11	15.0	14.5	15.0	19.0	17.5	18.0	20.5	19.5	20.0	19.0	18.0	18.5
12	16.0	15.0	15.5	18.5	17.5	18.0	21.0	19.5	20.5	19.0	18.5	18.5
13	16.5	16.0	16.0	17.5	16.5	17.0	21.0	20.0	20.5	19.5	18.5	19.0
14	16.5	15.0	15.5	17.5	16.5	17.0	21.0	20.5	20.5	19.0	18.5	19.0
15	16.5	15.5	16.0	18.0	16.5	17.0	21.0	20.5	20.5	18.5	18.0	18.5
16	16.5	15.5	16.0	18.0	17.0	17.5	21.0	20.0	20.5	18.0	17.5	18.0
17	16.5	15.5	16.0	17.5	17.0	17.0	21.5	20.5	21.0	18.0	17.5	17.5
18	17.0	16.0	16.5	17.5	17.0	17.5	21.5	20.5	21.0	18.0	17.5	18.0
19	18.0	17.0	17.5	17.5	16.5	17.0	21.5	20.5	21.0	18.0	17.5	17.5
20	17.5	17.0	17.5	17.5	16.5	17.0	21.5	20.5	21.0	18.0	17.5	17.5
21	17.5	16.5	17.0	18.0	16.5	17.0	21.0	20.5	21.0	18.0	17.5	17.5
22	18.0	16.5	17.0	18.5	17.0	17.5	21.0	20.5	21.0	17.5	17.5	17.5
23	17.5	16.5	17.0	18.5	17.5	18.0	20.5	20.0	20.0	17.5	16.5	17.0
24	18.0	17.5	17.5	18.5	17.5	18.0	20.0	19.5	20.0	17.5	16.5	17.0
25	18.5	17.0	17.5	18.5	17.5	18.0	19.5	19.0	19.0	17.5	17.0	17.0
26	18.0	17.0	17.5	18.5	17.5	18.0	19.5	19.0	19.0	17.0	16.5	17.0
27	18.0	17.0	17.5	19.0	18.0	18.5	19.5	19.0	19.0	17.0	16.5	17.0
28	18.0	16.5	17.5	18.5	18.0	18.0	19.0	19.0	19.0	17.0	16.5	16.5
29	17.5	16.5	17.0	18.5	17.5	18.0	19.0	18.5	18.5	17.0	16.5	16.5
30	18.0	16.5	17.5	18.5	17.5	18.0	19.0	18.0	18.5	17.0	16.5	16.5
31	---	---	---	18.5	18.0	18.0	19.0	18.5	18.5	---	---	---
MONTH	18.5	12.0	16.0	19.0	16.0	17.5	21.5	18.0	20.0	19.5	16.5	18.0
YEAR	21.5	2.5	11.5									

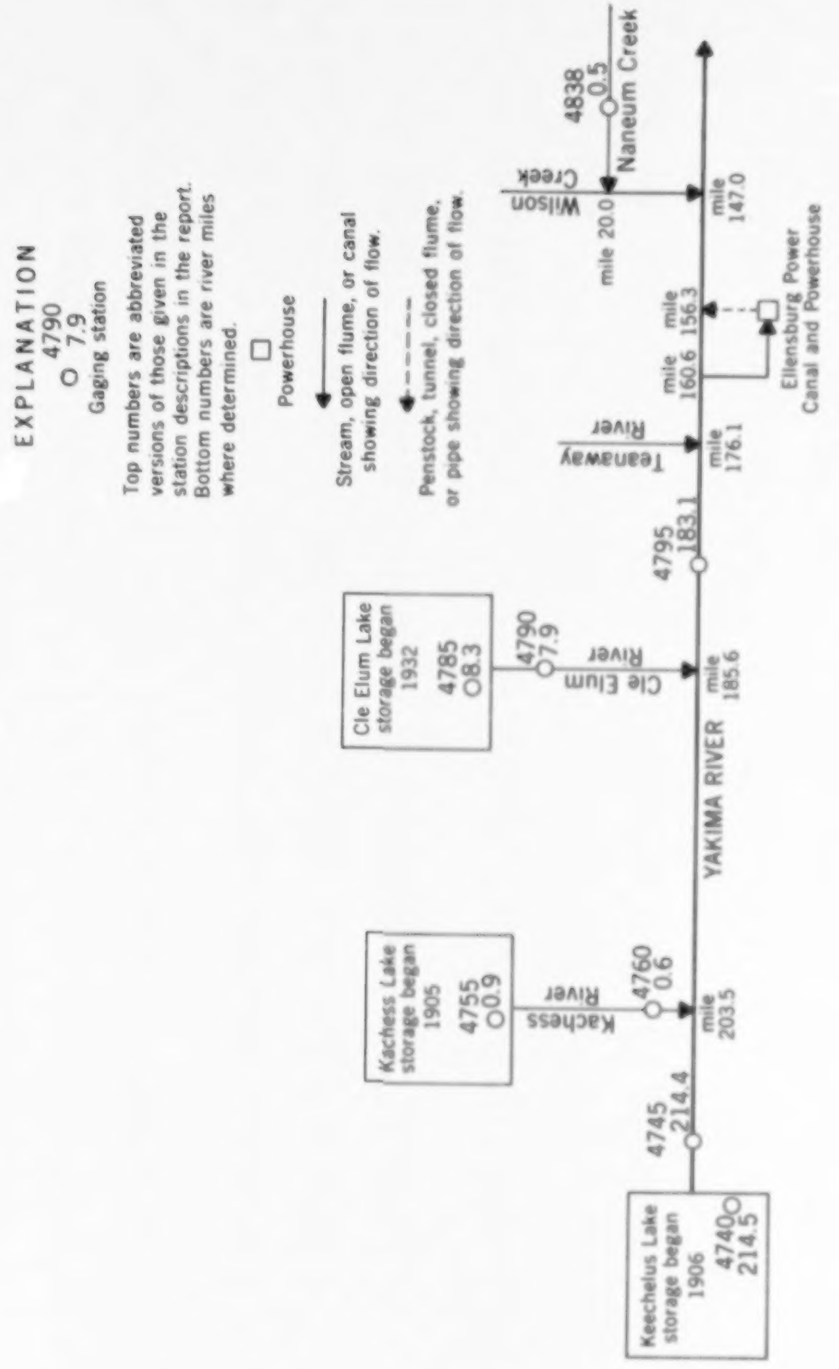
EXPLANATION
4790
○ 7.9
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
□
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Keechelus Lake storage began 1906
4740
214.5
4745
214.4
Kachess Lake storage began 1905
4755
0.9
4760
0.6
Kachess River
mile 203.5
YAKIMA RIVER
Cle Elum Lake storage began 1932
4785
8.3
4790
7.9
Cle Elum River
mile 185.6
4795
183.1
Teanaway River
mile 176.1
mile 160.6
mile 156.3
Ellensburg Power Canal and Powerhouse
Wilson Creek
mile 20.0
mile 147.0
4838
0.5
Naneum Creek

Figure 14. Gaging stations in Yakima River basin between Keechelus Lake and Naneum Creek.

12474500 YAKIMA RIVER NEAR MARTIN, WA

LOCATION.--Lat 47°19'17", long 121°20'06", in SW¼SW¼ sec.10, T.21 N., R.12 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, on left bank 800 ft (244 m) downstream from dam at outlet of Keechelus Lake, 2.9 mi (4.7 km) northwest of Martin, 9.5 mi (15.3 km) northwest of Easton, and at mile 214.4 (345.0 km).

DRAINAGE AREA.--54.7 mi² (141.7 km²).

PERIOD OF RECORD.--October 1903 to current year. Prior to February 1904 monthly discharge only, published in WSP 1316.

REVISED RECORDS.--WSP 2186: 1910. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,422.40 ft (738.348 m) above mean sea level (Bureau of Reclamation bench mark). Prior to July 20, 1925, nonrecording gages at several sites within 2 mi (3 km) of present site at various datums.

REMARKS.--Records good. Flow completely regulated by Keechelus Lake. No diversion above station.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation; records reviewed by Geological Survey.

AVERAGE DISCHARGE.--74 years, 338 ft³/s (9.572 m³/s), 244,900 acre-ft/yr (302 hm³/yr), adjusted for storage since January 1906.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,370 ft³/s (209 m³/s) Mar. 26, 1915, when temporary crib dam was washed out; practically no flow when gates in Keechelus Lake Dam are closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,750 ft³/s (49.6 m³/s) Aug. 12, gage height, 9.78 ft (2.981 m); no flow most of year when gates at Keechelus Lake were sealed.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	.00	.00	.00	.00	.00	.00	.00	.00	34	1490	665
2	2.5	.00	.00	.00	.00	.00	.00	.00	.00	20	1550	580
3	2.5	.00	.00	.00	.00	.00	.00	.00	.00	62	1580	488
4	2.5	.00	.00	.00	.00	.00	.00	.00	.00	68	1600	408
5	2.5	.00	.00	.00	.00	.00	.00	.00	.00	73	1670	342
6	2.0	.00	.00	.00	.00	.00	.00	.00	.00	78	1690	101
7	2.0	.00	.00	.00	.00	.00	.00	.00	.00	78	1660	4.0
8	2.0	.00	.00	.00	.00	.00	.00	.00	.00	78	1630	3.0
9	2.0	.00	.00	.00	.00	.00	.00	.00	.00	78	1660	.00
10	2.0	.00	.00	.00	.00	.00	.00	.00	.00	62	1690	.00
11	2.0	.00	.00	.00	.00	.00	.00	.00	.00	62	1710	.00
12	2.0	.00	.00	.00	.00	.00	.00	.00	.00	119	1720	.00
13	2.0	.00	.00	.00	.00	.00	.00	.00	.00	491	1700	.00
14	2.0	.00	.00	.00	.00	.00	.00	.00	.00	1400	1650	.00
15	2.0	.00	.00	.00	.00	.00	.00	.00	.00	1400	1610	.00
16	2.0	.00	.00	.00	.00	.00	.00	.00	.00	1470	1580	.00
17	2.0	.00	.00	.00	.00	.00	.00	.00	.00	1460	1530	.00
18	2.0	.00	.00	.00	.00	.00	.00	.00	.00	1450	1570	.00
19	2.0	.00	.00	.00	.00	.00	.00	.00	.00	1470	1610	.00
20	2.0	.00	.00	.00	.00	.00	.00	.00	.00	1490	1580	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	1480	1510	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	1460	1520	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	1450	1550	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	1440	1490	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	1460	1400	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	1470	1280	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	1460	1160	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	1460	1040	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	1500	942	.00
30	.00	.00	.00	.00	---	.00	.00	.00	17	1530	852	.00
31	.00	---	.00	.00	---	.00	---	.00	---	1510	756	---
TOTAL	42.50	.00	.00	.00	.00	.00	.00	.00	17.00	27811	45980	2591.00
MEAN	1.37	.000	.000	.000	.000	.000	.000	.000	.57	897	1483	86.4
MAX	2.5	.00	.00	.00	.00	.00	.00	.00	17	1530	1720	665
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	20	756	.00
AC-FT	84	.00	.00	.00	.00	.00	.00	.00	34	55160	91200	5140
†	+5,520	+12,900	+16,070	+20,690	+14,350	+11,160	+27,940	+21,870	+16,860	-54,520	-88,490	+3,170
MEAN‡	91.1	217	261	336	258	182	470	356	284	10.4	44.1	140
CFSM‡	1.67	3.97	4.77	6.14	4.72	3.33	8.59	6.51	5.19	.19	.81	2.56
IN.‡	1.92	4.42	5.51	7.08	4.92	3.83	9.58	7.50	5.79	.22	.93	2.85
AC-FT‡	5,600	12,900	16,070	20,690	14,350	11,160	27,940	21,870	16,890	640	2,710	8,310

CAL YR 1976: TOTAL 168,785.00 MEAN 461 MAX 1,730 MIN .00 AC-FT 334,800
DO.....‡ MEAN‡ 341 CFSM‡ 6.23 IN‡ 84.91 AC-FT‡ 247,700
WTR YR 1977: TOTAL 76,441.50 MEAN 209 MAX 1,720 MIN .00 AC-FT 151,600
DO.....‡ MEAN‡ 220 CFSM‡ 4.02 IN‡ 54.54 AC-FT‡ 159,100

† Change in contents, in acre-feet, in Keechelus Lake.
‡ Adjusted for change in contents in Keechelus Lake.

12476000 KACHESS RIVER NEAR EASTON, WA

LOCATION.--Lat 47°15'41", long 121°12'08", on north line sec.3, T.20 N., R.13 E., Kittitas County, Hydrologic Unit 17030001, on left bank 0.3 mi (0.5 km) downstream from Kachess Lake, 2.0 mi (3.2 km) northwest of Easton, and at mile 0.6 (1.0 km).

DRAINAGE AREA.--63.6 mi² (164.7 km²)

PERIOD OF RECORD.--October 1903 to current year.

REVISED RECORDS.--WSP 369: 1904, 1907-8. WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,188.10 ft (666.935 m) above mean sea level (Bureau of Reclamation bench mark). Prior to July 22, 1913, nonrecording gage and July 22, 1913, to Aug. 14, 1916, water-stage recorder, at site 0.2 mi (0.3 km) upstream at different datum. Aug. 15, 1916, to Oct. 8, 1927, water-stage recorder at site 0.5 mi (0.8 km) downstream at different datum. Oct. 9, 1927, to Oct. 30, 1931, water-stage recorder at present site at datum 1.33 ft (0.405 m) higher.

REMARKS.--Records good. Flow completely regulated by Kachess Lake.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation; 2 discharge measurements made and records reviewed by Geological Survey.

AVERAGE DISCHARGE.--74 years, 294 ft³/s (8.326 m³/s), 213,000 acre-ft/yr (263 hm³/yr), adjusted for storage since October 1905.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,060 ft³/s (86.7 m³/s) Apr. 10, 1972, gage height, 8.57 ft (2.612 m); no flow at times when gates in dam are closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,010 ft³/s (56.9 m³/s) Sept. 14, gage height, 7.34 ft (2.237 m); minimum, 1.8 ft³/s (0.051 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1100	38	46	5.2	4.9	6.1	6.7	306	590	929	12	1100
2	1090	39	46	5.2	4.9	5.8	6.4	347	598	946	12	1250
3	1090	39	46	5.2	4.9	5.8	6.4	366	576	946	12	1310
4	1080	42	46	5.2	4.9	5.5	6.4	366	562	960	12	1290
5	1080	47	46	5.2	4.9	5.5	6.1	366	550	934	12	1280
6	1080	47	46	5.2	4.9	5.8	6.1	410	522	936	11	1390
7	1070	47	46	5.2	4.9	5.8	6.1	435	500	929	11	1600
8	1070	47	46	5.2	4.9	6.1	5.8	431	495	942	11	1660
9	1070	47	46	5.2	4.9	6.4	5.8	431	531	946	11	1740
10	1060	48	46	5.2	5.2	6.1	5.8	427	585	946	11	1700
11	1060	48	46	5.2	5.5	6.1	5.8	427	603	960	10	1780
12	514	48	46	4.9	6.1	6.1	5.8	427	603	934	139	1820
13	97	48	46	4.9	5.8	5.8	5.8	427	603	602	231	1910
14	97	48	46	4.9	5.5	5.8	5.8	419	598	14	231	1960
15	97	49	46	4.9	5.2	5.8	5.8	407	598	13	231	1880
16	96	48	46	4.9	5.2	5.8	5.8	463	598	13	276	1840
17	96	48	46	6.5	5.2	5.5	5.5	500	630	13	13	1720
18	61	48	46	6.5	5.2	5.5	5.5	500	655	13	128	1580
19	38	48	46	7.0	5.2	5.8	5.5	539	650	13	252	1470
20	38	47	46	5.8	5.2	5.8	5.5	572	696	13	396	1380
21	38	47	46	5.8	5.2	5.8	5.5	567	725	13	508	1320
22	38	47	46	5.8	5.5	6.1	5.8	562	725	12	557	1290
23	38	47	46	5.5	5.5	6.1	6.1	567	745	12	647	1270
24	38	47	46	5.2	5.2	6.1	6.1	567	813	12	680	1250
25	38	47	46	5.2	5.2	5.8	6.1	567	852	12	680	1220
26	38	47	37	5.2	5.2	7.6	5.8	580	852	12	800	612
27	38	47	6.1	5.2	5.2	10	74	590	846	12	902	192
28	38	47	5.8	5.2	5.8	6.1	208	594	846	12	896	192
29	38	47	5.5	5.2	---	7.6	252	580	846	12	941	105
30	38	48	5.2	4.9	---	7.0	263	567	874	12	995	1.8
31	38	---	5.2	4.9	---	7.0	---	576	---	12	990	---
TOTAL	13408	1380	1214.8	169.6	146.2	193.7	930.8	14815	19868	12151	10621	39192.8
MEAN	433	46.0	39.2	5.47	5.22	6.25	31.0	478	662	392	343	1306
MAX	1100	48	46	8.5	6.1	10	263	598	874	966	995	1960
MIN	38	38	5.2	4.9	4.9	5.5	5.5	306	495	12	10	1.8
AC-FT	26590	2740	2410	336	290	384	1850	29390	39410	24100	21070	77740
†	-24,340	+5,080	+9,730	+15,610	+11,660	+10,400	+19,910	-11,550	-25,380	-22,480	-18,910	-73,650
MEAN‡	36.9	131	197	259	215	175	366	290	232	26.3	35.1	68.7
CFSM‡	.38	2.06	3.10	4.07	3.38	2.75	5.75	4.56	3.65	.41	.55	1.08
IN.‡	.44	2.31	3.57	4.70	3.52	3.18	6.42	5.26	4.07	.47	.64	1.20
AC-FT‡	2,250	7,820	12,110	15,930	11,950	10,760	21,760	17,840	13,830	1,620	2,160	4,090

CAL YR 1976: TOTAL 124,849.8 MEAN 341 MAX 1,170 MIN 5.2 AC-FT 247,600
DO.....‡ MEAN‡ 299 CFSM‡ 4.70 IN‡ 64.00 AC-FT‡ 217,400
WTR YR 1977: TOTAL 114,090.9 MEAN 313 MAX 1,960 MIN 1.8 AC-FT 226,300
DO.....‡ MEAN‡ 169 CFSM‡ 2.66 IN‡ 36.03 AC-FT‡ 122,200

† Change in contents, in acre-feet, in Kachess Lake.
‡ Adjusted for change in contents in Kachess Lake.

12479000 CLE ELUM RIVER NEAR ROSLYN, WA

LOCATION.--Lat 47°14'41", long 121°04'00", in NW¼NW¼ sec.11, T.20 N., R.14 E., Kittitas County, Hydrologic Unit 17030001, on left bank 0.3 mi (0.5 km) downstream from dam at Cle Elum Lake, 3.4 mi (5.5 km) northwest of Roslyn, and at mile 7.9 (12.7 km).

DRAINAGE AREA.--203 mi² (526 km²).

PERIOD OF RECORD.--October 1903 to current year.

REVISED RECORDS.--WSP 369: 1906-8. WSP 1216: Drainage area. WSP 1286: 1908-9. WSP 1316: 1904.

GAGE.--Water-stage recorder. Datum of gage is 2,102.10 ft (640.720 m) above mean sea level (Bureau of Reclamation bench mark). Prior to Oct. 14, 1913, and Sept. 4, 1931, to Apr. 19, 1933, several nonrecording gages and Oct. 14, 1913, to Sept. 3, 1931, water-stage recorder, at about same sites at same datum.

REMARKS.--Records good above 100 ft³/s (2.83 m³/s) and fair below. No diversion above station. Flow regulated by Cle Elum Lake 0.3 mi (0.5 km) upstream.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation; 1 discharge measurement made and records reviewed by Geological Survey.

AVERAGE DISCHARGE.--74 years, 933 ft³/s (26.42 m³/s), 676,000 acre-ft/yr (834 hm³/yr), adjusted for storage since 1906.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,700 ft³/s (530 m³/s) Nov. 15, 1906, gage height, 14.05 ft (4.282 m); no flow at times when gates in dam are closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,830 ft³/s (108 m³/s) June 26, gage height, 9.53 ft (2.905 m); minimum daily, 1.1 ft³/s (0.031 m³/s) Dec. 24 to Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1400	3.4	1.3	1.1	17	11	13	1680	1990	3690	2690	1020
2	1500	3.9	1.3	1.1	18	11	13	1810	1910	3740	2640	946
3	1500	3.9	1.3	1.1	18	11	13	1970	1630	3700	2590	908
4	1200	3.9	1.3	1.1	19	10	68	1990	1520	3660	2540	872
5	1100	3.4	1.3	1.1	19	11	92	2020	1520	3630	2490	836
6	1100	3.4	1.3	1.1	20	12	90	1960	1520	3610	2440	808
7	1100	3.0	1.2	1.1	20	12	271	1900	1400	3570	2390	775
8	1100	3.0	1.2	1.1	20	12	1020	1920	1380	3600	2340	742
9	1100	3.0	1.2	1.1	22	12	1400	1910	1440	3650	2290	704
10	1100	3.0	1.2	1.1	22	11	1300	1900	1820	3560	2250	665
11	1100	3.5	1.2	1.1	18	12	1210	1710	2190	3530	2200	635
12	1060	3.0	1.2	1.1	18	12	1430	1490	2370	3560	2150	600
13	854	3.0	1.2	1.1	12	11	1540	1630	2440	3440	2090	555
14	854	2.6	1.2	1.1	13	11	1510	1690	2440	2900	2040	520
15	854	2.4	1.2	1.1	14	11	1410	1600	2520	3020	1980	492
16	854	2.4	1.2	1.1	13	12	1430	1690	2790	3040	1920	470
17	854	2.4	1.2	1.1	12	11	1460	1790	2940	3000	1860	438
18	854	2.4	1.2	1.1	11	10	1420	1920	3060	2870	1790	417
19	560	2.4	1.2	9.1	12	10	1490	1920	3040	2800	1730	394
20	90	1.8	1.2	9.1	11	9.2	1610	1890	3050	2860	1660	386
21	88	1.6	1.2	10	12	10	1620	1920	3150	2850	1610	386
22	85	1.5	1.2	11	11	10	1240	1910	3200	2850	1540	386
23	85	1.5	1.2	12	11	10	659	1880	3310	2820	1480	386
24	85	1.5	1.1	13	11	10	786	1850	3410	2780	1420	389
25	88	1.4	1.1	13	10	10	503	1800	3430	2820	1360	389
26	36	1.4	1.1	14	10	12	187	1850	3590	2830	1310	389
27	5.5	1.4	1.1	15	11	13	196	1900	3640	2840	1260	386
28	4.9	1.3	1.1	16	12	12	669	1910	3640	2830	1220	388
29	4.4	1.3	1.1	17	---	13	1170	1920	3630	2820	1160	376
30	3.9	1.3	1.1	17	---	22	1560	1900	3620	2790	1120	268
31	3.4	---	1.1	17	---	18	---	2100	---	2750	1080	---
TOTAL	21453.1	73.5	37.0	107.0	412	362.2	27520	57480	77660	98660	58640	16925
MEAN	692	2.45	1.19	4.03	14.7	11.7	917	1854	2589	3182	1892	564
MAX	1500	3.9	1.3	17	22	22	1620	2100	3640	3740	2690	1020
MIN	3.4	1.3	1.1	1.1	10	9.2	13	1490	1380	2750	1080	268
AC-FT	42550	146	73	271	817	718	54590	114000	154000	195700	116300	33570
*	-29,160	+21,120	+22,800	+39,370	+26,610	+22,300	+10,240	-51,520	-88,290	-173,550	-98,950	-15,540
MEAN†	218	357	373	646	494	376	1,090	1,016	1,104	359	282	303
CFSM†	1.07	1.76	1.84	3.18	2.43	1.85	5.37	5.00	5.44	1.77	1.38	1.49
IN.†	1.24	1.96	2.12	3.67	2.53	2.13	5.99	5.77	6.07	2.04	1.60	1.67
AC-FT†	13,390	21,270	22,960	39,740	27,430	23,110	64,830	62,480	65,710	22,050	17,320	18,030

CAL YR 1976: TOTAL 362,326.6 MEAN 990 MAX 3,040 MIN 1.1 AC-FT 718,700
DO.....†: MEAN† 1,018 CFSM† 5.01 IN† 68.25 AC-FT† 738,900
WTR YR 1977: TOTAL 359,161.4 MEAN 983 MAX 3,740 MIN 1.1 AC-FT 712,400
DO.....†: MEAN† 550 CFSM† 2.71 IN† 36.80 AC-FT† 398,400

* Change in contents, in acre-feet, in Cle Elum Lake.
† Adjusted for change in contents in Cle Elum Lake.

12479500 YAKIMA RIVER AT CLE ELUM, WA.

LOCATION.--47°11'33", long 120°56'48", in SW¼SE¼ sec.27, T.20 N., R.15 E., Kittitas County, Hydrologic Unit 17030001, on right bank 300 ft (91 m) downstream from highway bridge at Cle Elum, 0.1 mi (0.2 km) downstream from Crystal Creek (formerly Roslyn Creek), 1.3 mi (2.1 km) downstream from Tillman Creek, 7.0 mi (11.3 km) upstream from Teanaway River, and at mile 183.1 (294.6 km).

DRAINAGE AREA.--495 mi² (1,282 km²).

PERIOD OF RECORD.--August 1906 to current year. Chemical analyses February 1910 to January 1911, December 1952 to September 1956, July 1969 to September 1970. Water temperature December 1952 to September 1956.

REVISED RECORDS.--WSP 369: 1910-11. WSP 832: 1936. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,900 ft (579 m), from topographic map. Prior to July 12, 1911, June 28, 1923, to Oct. 21, 1924, Nov. 13, 1964, to Sept. 30, 1968, Oct. 1, 1969 to Sept. 1971, nonrecording gage, and July 12, 1911, to June 27, 1923, Oct. 22, 1924, to Nov. 12, 1964, Oct. 1, 1968 to Sept. 30, 1969, water-stage recorder, all at various locations within 500 ft (150 m) of present site at different datums.

REMARKS.--Records fair. Kittitas high-line canal diverts water from river at Easton 19.5 mi (31.4 km) upstream for irrigation below station. Several smaller diversions for irrigation of several hundred acres above station. Considerable regulation by Keechelus, Kachess, and Cle Elum Lakes.

COOPERATION.--Gaging station operated and daily discharge furnished by Bureau of Reclamation. One discharge measurement made and records reviewed by Geological Survey.

AVERAGE DISCHARGE.--71 years, 2,040 ft³/s (57.77 m³/s), 56.02 in/yr (1,423 mm/yr), 1,478,000 acre-ft/yr (1,820 hm³/yr), adjusted for storage since October 1906 and Kittitas Canal diversion since 1930.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,600 ft³/s (725 m³/s) Nov. 14, 1906, gage height, 12.5 ft (3.81 m) from floodmarks, datum then in use; minimum, 34 ft³/s (0.96 m³/s) Oct. 27, 28, 29, 1973, gage height, 2.57 ft (0.783 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,180 ft³/s (118 m³/s) July 2, gage height, 5.15 ft (1.570 m); minimum daily, 162 ft³/s (4.59 m³/s) Nov. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1640	215	200	288	258	363	394	1800	2230	3990	3410	2190
2	1660	258	190	258	252	342	402	1960	2110	4150	3380	2230
3	1640	240	186	246	240	335	410	2150	1860	4120	3380	2210
4	1590	230	195	230	230	314	418	2170	1690	4050	3310	2080
5	1390	215	190	230	225	215	570	2170	1690	3960	3330	1980
6	1390	215	182	394	215	195	651	2130	1670	3870	3380	1880
7	1390	210	178	495	215	210	786	2040	1570	3810	3310	1840
8	1390	205	230	378	205	230	1320	2060	1540	3780	3230	1860
9	1390	178	246	630	205	264	1480	2060	1550	3900	3150	1840
10	1390	170	246	1080	225	276	1550	2060	1840	3780	3180	1920
11	1370	166	240	1180	307	300	1320	1960	2280	3690	3150	1860
12	1370	166	235	1140	378	294	1590	1670	2500	3630	3230	1820
13	1070	162	230	810	459	294	1860	1760	2610	3990	3310	1880
14	1070	166	225	356	410	288	1840	1860	2590	3750	3230	1920
15	1070	166	225	363	370	282	1690	1860	2640	3900	3120	1820
16	1060	170	246	370	342	288	1710	1860	2920	3960	3020	1730
17	1060	174	252	378	335	282	1690	1900	3100	3930	3280	1640
18	1040	220	252	531	356	276	1670	2110	3250	3720	3100	1480
19	896	230	270	987	349	240	1640	2130	3230	3550	2850	1350
20	307	220	258	774	328	225	1750	2080	3230	3720	2850	1280
21	276	220	252	630	328	235	1760	2110	3310	3660	2950	1290
22	235	215	246	560	335	240	1540	2130	3470	3630	2830	1220
23	215	210	252	495	342	235	1260	2080	3520	3580	2950	1220
24	220	215	240	434	320	230	1310	2040	3550	3520	2950	1230
25	230	230	258	402	307	210	1320	2000	3660	3550	2850	1220
26	225	240	276	370	307	225	1010	2020	3870	3610	2800	1220
27	205	235	468	349	300	246	570	2110	3990	3580	2800	1170
28	210	220	468	328	335	264	935	2110	4020	3580	2640	1130
29	200	215	410	307	---	282	1290	2110	3990	3520	2450	1110
30	200	215	363	282	---	394	1660	2150	3990	3580	2480	1060
31	215	---	321	264	---	386	---	2320	---	3520	2300	---
TOTAL	27614	6191	8030	15539	8486	8460	37396	62970	83470	116580	94200	48680
MEAN	891	206	259	501	303	273	1247	2031	2782	3761	3039	1623
MAX	1660	258	468	1180	459	394	1860	2320	4020	4150	3410	2230
MIN	200	162	178	230	205	195	394	1676	1540	3520	2300	1060
AC-FT	54770	12280	15930	30820	16830	16780	74170	124900	165600	231200	186800	96560
†	-47,980	+39,100	+48,690	+75,670	+52,620	+43,950	+58,090	-41,200	-97,010	-250,550	-206,380	-86,020
††	22,990	0	0	0	0	0	8,770	41,380	44,730	56,540	50,610	34,990
MEAN‡	484	863	1,051	1,732	1,251	988	2,370	2,035	1,904	605	505	765
CFSM‡	0.98	1.74	2.12	3.50	2.53	2.00	4.79	4.11	3.85	1.22	1.02	1.55
IN.‡	1.13	1.95	2.45	4.04	2.63	2.30	5.34	4.74	4.29	1.41	1.18	1.73
AC-FT‡	29,780	51,380	64,620	106,500	69,450	60,730	141,000	125,100	113,300	37,190	31,030	45,530

CAL YR 1976:	TOTAL	687,974	MEAN	1,880	MAX	5,680	MIN	162	AC-FT	1,365,000
DO.....:	MEAN‡	2,188	CFSM‡	4.42	IN‡	60.19	AC-FT‡	1,588,000		
WTR YR 1977:	TOTAL	517,616	MEAN	1,418	MAX	4,150	MIN	162	AC-FT	1,027,000
DO.....:	MEAN‡	1,210	CFSM‡	2.44	IN‡	33.20	AC-FT‡	876,000		

† Change in contents, in acre-feet, for Keechelus, Kachess, and Cle Elum Lakes.
†† Diversion, in acre-feet, by Kittitas Canal.
‡ Adjusted for change in lake contents and diversion.

12483800 NANEUM CREEK NEAR ELLENSBURG, WA

LOCATION.--Lat 47°07'37", long 120°28'47", in SE¼NE¼ sec.20, T.19 N., R.19 E., Kittitas County, Hydrologic Unit 17030001, on right bank 10 ft (3.0 m) upstream from intake of Ellensburg water-supply system, 9 mi (14 km) north of Ellensburg, and at mile 0.5 (0.8 km), corrected.

DRAINAGE AREA.--69.5 mi² (180.0 km²).

PERIOD OF RECORD.--March 1957 to September 1971, September 1972 to current year.

REVISED RECORDS.--WSP 1566: Drainage area. WRD Wash. 1974: 1973(M).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 2,480 ft (756 m), from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. Small diversion above station for irrigation.

AVERAGE DISCHARGE.--19 years(water years 1958-71, 1973-77), 56.2 ft³/s (1.592 m³/s) 10.98 in/yr (279 mm/yr), 40,720 acre-ft/yr (50.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 968 ft³/s (27.4 m³/s) June 9, 1964, gage height, 4.08 ft (1.244 m); minimum, 3.8 ft³/s (0.11 m³/s) Aug. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.25 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 26	0300	*47	1.33	0.70	0.213	Jan. 3	2230	(a)	----	*1.79	0.546

Minimum discharge, 3.8 ft³/s (0.11 m³/s) Aug. 17.

a Result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	20	13	14	15	16	15	33	30	15	9.7	8.3
2	19	18	13	13	16	15	15	36	28	15	9.7	8.3
3	20	18	15	12	17	15	16	40	26	15	9.7	8.3
4	20	18	16	11	17	15	16	33	28	15	10	8.7
5	20	18	16	10	17	15	21	31	29	15	9.0	9.2
6	20	18	16	11	17	16	24	29	26	14	8.0	7.8
7	20	18	18	11	18	16	27	29	26	14	7.5	7.4
8	20	18	19	11	18	16	34	31	26	14	7.0	7.8
9	19	18	20	11	18	16	31	27	25	14	7.0	7.8
10	19	18	19	10	19	15	26	27	24	14	6.5	7.8
11	19	18	19	10	20	15	25	28	24	14	6.5	7.8
12	19	18	18	10	25	15	24	27	24	13	6.5	7.4
13	19	16	18	12	30	14	24	26	23	13	6.5	6.9
14	19	16	18	15	26	14	23	26	23	13	6.5	6.9
15	19	17	18	17	22	15	22	26	22	13	6.5	6.9
16	19	18	19	17	20	15	22	26	21	12	6.0	7.4
17	19	18	19	19	18	15	21	25	19	12	5.6	7.8
18	19	18	19	20	18	15	21	25	19	12	5.1	7.8
19	18	17	18	22	17	14	20	25	19	11	5.1	9.2
20	17	16	15	21	17	14	19	24	18	11	5.1	9.2
21	17	17	17	21	16	15	19	24	18	11	5.6	8.3
22	17	16	18	20	16	16	20	24	18	11	6.5	8.7
23	17	16	17	17	15	17	26	28	17	11	6.5	11
24	18	17	16	13	15	16	35	29	17	11	8.3	12
25	19	18	18	13	15	15	41	26	17	11	7.8	11
26	19	16	18	13	16	15	41	26	16	11	8.7	12
27	19	13	18	13	16	16	35	26	16	11	8.3	11
28	18	12	19	13	17	15	34	25	16	10	8.3	11
29	18	12	18	13	---	14	34	24	16	10	9.2	13
30	18	12	18	14	---	15	34	24	15	10	13	12
31	19	---	17	14	---	15	---	24	---	10	9.7	---
TOTAL	582	503	540	441	511	470	765	854	646	386	235.4	268.7
MEAN	18.8	16.8	17.4	14.2	18.3	15.2	25.5	27.5	21.5	12.5	7.59	8.96
MAX	20	20	20	22	30	17	41	40	30	15	13	13
MIN	17	12	13	10	15	14	15	24	15	10	5.1	6.9
AC-FT	1150	998	1070	875	1010	932	1520	1690	1280	766	467	533

CAL YR 1976 TOTAL 25985.0 MEAN 71.0 MAX 437 MIN 12 AC-FT 51540
WTR YR 1977 TOTAL 6202.1 MEAN 17.0 MAX 41 MIN 5.1 AC-FT 12300

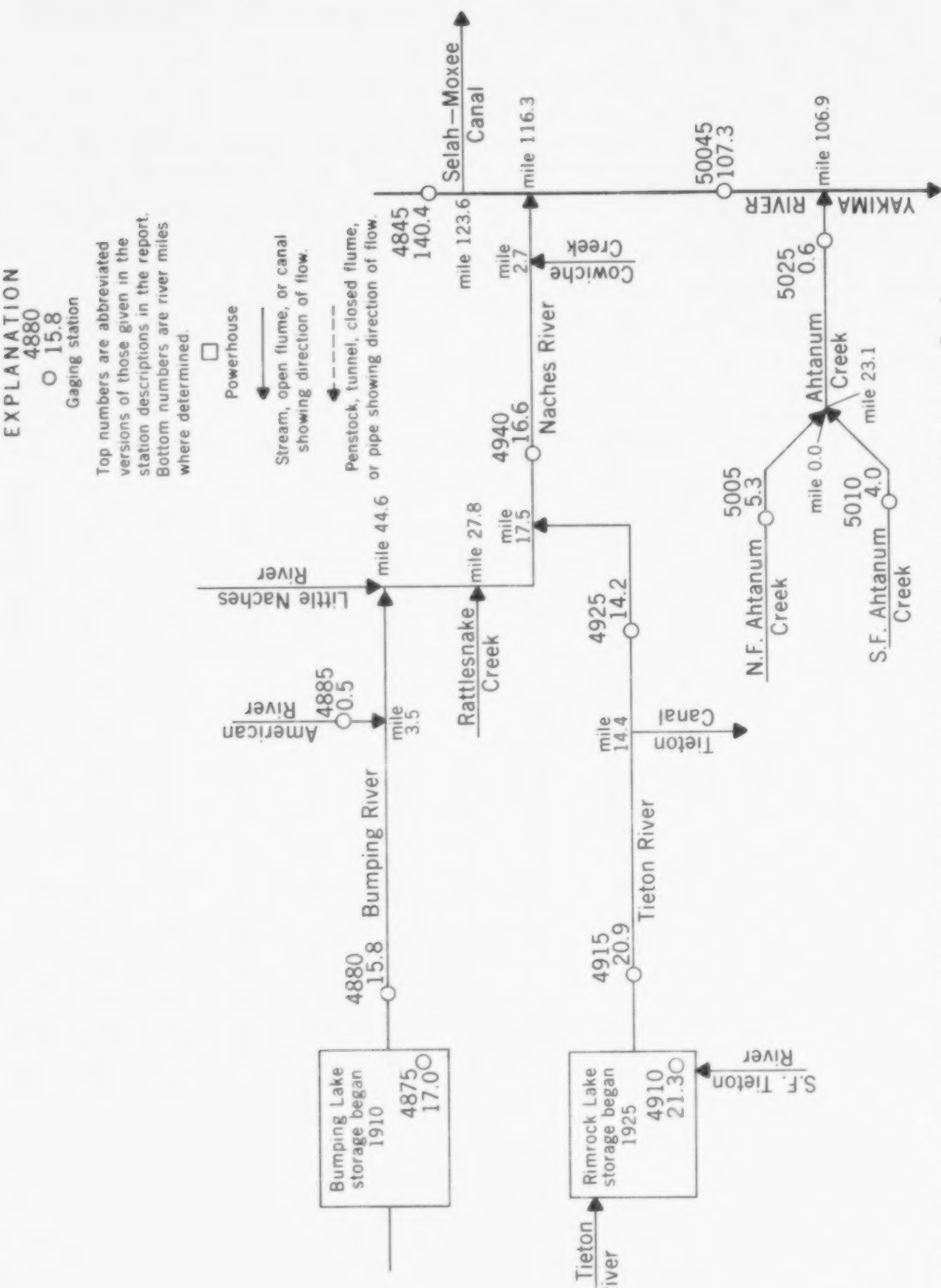
EXPLANATION
4880
○ 15.8
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
□ Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Bumping Lake storage began 1910
4875 17.0
4880 15.8
Bumping River
American River
4885 0.5
mile 3.5
Little Naches River
mile 44.6
Rattlesnake Creek
mile 27.8
mile 17.5
4940 16.6
Naches River
mile 2.7
Cowiche Creek
4845 140.4
mile 123.6
Selah—Moxee Canal
mile 116.3
50045 107.3
mile 106.9
YAKIMA RIVER
N.F. Tieton River
Rimrock Lake storage began 1925
4910 21.3
S.F. Tieton River
4915 20.9
Tieton River
mile 14.4
Tieton Canal
4925 14.2
N.F. Ahtanum Creek
5005 5.3
mile 0.0
S.F. Ahtanum Creek
5010 4.0
Ahtanum Creek
mile 23.1
5025 0.6

Figure 15. Gaging stations in Yakima River basin between Bumping Lake and Ahtanum Creek.

12484500 YAKIMA RIVER AT UMTANUM, WA

LOCATION.--Lat 46°51'46", long 120°28'44", in SW¼NW¼ sec.20, T.16 N., R.19 E., Kittitas County, Hydrologic Unit 17030001, on right bank at Umtanum railway siding, 0.5 mi (0.8 km) upstream from Umtanum Creek, 4.2 mi (6.8 km) upstream from McPherson Canyon, 10 mi (16 km) south of Ellensburg, and at mile 140.4 (225.9 km).

DRAINAGE AREA.--1,594 mi^2 (4,128 km^2).

PERIOD OF RECORD.--August 1906 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 412: 1914. WSP 1286: 1910. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,300.00 ft (396.240 m) above mean sea level. Prior to Sept. 28, 1911, nonrecording gage at approximately same site at various datums. Sept. 28, 1911, to Nov. 23, 1936, water-stage recorder at site about 300 ft (91 m) upstream at datum 26.70 ft (8.138 m) higher.

REMARKS.--Records excellent. Flow partly regulated by Keechelus, Kachess, and Cle Elum Lakes. Diversions above station for irrigation of about 105,000 acres (420 km^2).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,000 ft^3/s (1,160 m^3/s) Nov. 15 or 16, 1906, gage height, 41.1 ft (12.53 m), from floodmarks, present datum; minimum recorded, 138 ft^3/s (3.91 m^3/s) Oct. 3, 1915, gage height, 2.86 ft (0.872 m), datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,130 ft^3/s (117 m^3/s) July 13, gage height, 32.74 ft (9.979 m); minimum daily, 390 ft^3/s (11.0 m^3/s) Jan. 10; minimum gage height, 30.16 ft (9.193 m) Dec. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2290	591	460	559	527	655	623	2380	2820	3760	3700	2830
2	2380	615	453	519	543	631	615	2530	2640	3910	3640	2850
3	2340	615	439	488	503	615	607	2700	2610	3980	3620	2870
4	2380	599	446	474	481	583	615	2760	2360	3980	3560	2780
5	2260	583	439	467	474	551	802	2700	2390	3940	3590	2650
6	2140	559	439	460	460	488	1070	2650	2350	3890	3650	2500
7	2100	551	446	450	446	495	1330	2580	2260	3840	3640	2400
8	2100	543	481	430	446	527	2040	2580	2030	3770	3550	2350
9	2100	519	503	410	439	551	2500	2560	1920	3860	3450	2290
10	2150	488	511	390	453	551	2430	2530	1870	3860	3440	2350
11	2200	481	503	400	551	551	2000	2620	2300	3870	3410	2320
12	2220	474	495	410	615	567	1880	2240	2550	3740	3370	2270
13	1950	467	488	420	812	559	2310	2140	2750	3950	3480	2250
14	1760	460	481	420	792	543	2340	2280	2790	3830	3420	2300
15	1630	453	474	430	718	543	2210	2280	2760	3770	3340	2260
16	1570	453	488	439	664	527	2160	2240	2890	3870	3240	2170
17	1540	453	519	543	631	519	2140	2150	3070	3880	3720	2130
18	1520	467	519	1120	623	511	2090	2270	3220	3880	3540	1980
19	1520	535	519	2140	631	495	2030	2370	3240	3640	3060	1840
20	1150	527	503	1630	599	474	2110	2360	3220	3730	2940	1700
21	850	511	495	1280	599	467	2140	2320	3280	3720	3100	1640
22	774	503	511	1060	599	467	2090	2410	3410	3710	3070	1650
23	700	488	495	920	599	474	1670	2480	3470	3670	3080	1660
24	655	495	481	821	575	495	1700	2530	3450	3650	3240	1750
25	647	488	453	745	559	481	2110	2420	3560	3640	3210	1790
26	655	527	503	700	551	460	2000	2420	3650	3740	3220	1830
27	631	511	682	655	543	575	1360	2440	3800	3730	3250	1790
28	599	481	860	599	599	639	1170	2490	3800	3740	3180	1610
29	591	474	774	567	---	583	1460	2490	3780	3710	3030	1560
30	575	467	700	527	---	591	2110	2460	3800	3770	3150	1510
31	567	---	623	511	---	615	---	2600	---	3760	2990	---
TOTAL	46544	15378	16183	20984	16032	16783	51712	75980	88040	117790	103880	63880
MEAN	1501	513	522	677	573	541	1724	2451	2935	3800	3351	2129
MAX	2380	615	860	2140	812	655	2500	2760	3800	3980	3720	2870
MIN	567	453	439	390	439	460	607	2140	1870	3640	2940	1510
AC-FT	92320	30500	32100	41620	31800	33290	102600	150700	174600	233600	206000	126700

CAL YR 1976 TOTAL 1070235 MEAN 2924 MAX 7630 MIN 439 AC-FT 2123000
WTR YR 1977 TOTAL 633186 MEAN 1735 MAX 3980 MIN 390 AC-FT 1256000

12485005 ROZA CANAL AT BEAM ROAD NEAR ZILLAH, WA

LOCATION.--Lat 46°24'58", long 120°09'59", in NE¼NE¼ sec.27, T.11 N., R.21 E., Yakima County, Hydrologic Unit 17030003, 4 mi (6.4 km) east-northeast Zillah.

PERIOD OF RECORD.--March to September 1975 (discontinued).

WATER QUALITY DATA, MARCH TO SEPTEMBER 1975

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
19...	1510	510	138	5.5	6	56	77
21...	1610	510	140	4.5	3	31	43
25...	1620	530	140	6.0	2	24	34
27...	1550	540	140	4.0	2	12	17
APR							
02...	1200	500	130	6.0	1	11	15
03...	1930	490	133	6.0	1	5	6.6
07...	1555	530	133	8.0	2	4	5.7
09...	1600	550	135	8.0	1	7	10
14...	1555	550	125	8.0	2	10	15
22...	1615	1400	120	9.0	6	22	83
24...	1620	630	115	16.0	6	24	41
30...	0840	630	125	9.0	8	36	61
MAY							
02...	1500	700	120	11.0	5	34	64
07...	1400	750	115	12.0	--	41	83
10...	1450	780	120	14.0	5	39	82
16...	1435	820	94	12.0	30	126	279
18...	2020	840	95	13.0	6	95	215
25...	0930	780	90	10.0	10	68	143
31...	1705	950	90	16.0	10	62	159
JUN							
05...	1050	1080	100	13.0	10	81	236
09...	1715	1400	95	14.0	7	53	200
13...	1035	1050	98	16.0	6	117	332
18...	1615	1100	100	14.0	6	33	98
21...	1045	1100	105	17.0	5	31	92
24...	1045	1150	100	15.0	7	36	112
26...	1245	1230	95	15.0	4	28	93
JUL							
01...	1050	1090	110	16.0	6	22	65
03...	1045	1010	105	17.0	6	27	74
08...	1645	1020	120	18.0	10	84	231
11...	1745	1050	110	20.0	10	43	122
17...	0935	1080	100	17.0	4	26	76
21...	1045	1200	105	18.6	4	34	110
23...	1045	1070	70	19.8	4	25	72
25...	1645	1060	90	22.2	5	30	86
29...	1615	1020	95	19.2	6	21	58
AUG							
01...	1730	1000	100	18.2	6	24	65
05...	1630	1000	95	18.8	4	25	67
14...	1610	670	93	16.0	1	15	27
19...	0900	740	100	14.5	2	19	38
21...	1200	900	90	17.2	1	26	63
27...	1745	800	100	16.7	1	16	35
SEP							
04...	0900	750	105	13.9	1	9	18
10...	1025	790	130	17.1	1	16	34
16...	1805	980	100	16.2	1	9	24
25...	1100	660	110	14.2	1	8	14

12485010 ROZA CANAL AT SCOON ROAD NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°23'25", long 120°01'07", on line between SE¼ sec.35, and SW¼ sec.36, T.11 N., R.22 E., Yakima County, Hydrologic Unit, 17030003, at Scoon Road crossing, 4.0 mi (6.4 km) north of Sunnyside.

PERIOD OF RECORD.--March to October 1976 (discontinued).

WATER QUALITY DATA, MARCH TO OCTOBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
MAR , 1976											
18...	1415	351	112	8.1	22	.10	.44	.54	.12	104	99
22...	1455	327	132	5.8	11	--	--	--	--	30	26
26...	1255	395	137	7.0	15	--	--	--	--	54	58
29...	1610	375	120	7.6	15	--	--	--	--	36	36
APR											
02...	1650	399	98	4.6	8	--	--	--	--	63	68
05...	1520	373	82	11.0	3	.00	.13	.13	.04	19	19
09...	1155	382	96	8.8	9	--	--	--	--	36	37
13...	1215	448	92	8.6	13	--	--	--	--	80	97
15...	1020	437	86	7.6	6	--	--	--	--	44	52
19...	1335	395	102	10.0	4	.01	.29	.30	.04	23	25
22...	1345	407	90	9.4	4	--	--	--	--	30	33
27...	1125	453	91	9.3	4	--	--	--	--	52	64
30...	1250	433	113	11.4	4	--	--	--	--	43	50
MAY											
03...	1605	420	98	13.2	6	.00	.34	.34	.11	72	82
07...	0905	469	95	11.2	8	--	--	--	--	83	105
10...	1245	535	77	12.6	8	--	--	--	--	108	156
13...	1130	633	78	12.0	6	--	--	--	--	86	147
17...	1130	630	87	12.4	6	--	--	--	--	70	119
21...	0900	595	93	10.6	4	.10	.22	.32	.08	67	108
24...	1130	620	82	11.7	3	--	--	--	--	43	72
27...	1155	625	69	12.2	3	--	--	--	--	77	130
JUN											
01...	1400	600	75	11.2	2	.13	.22	.35	.12	50	81
03...	1100	550	100	11.3	2	--	--	--	--	59	88
08...	1030	535	104	14.9	2	.09	.26	.35	.08	7	10
10...	1225	575	99	14.9	3	.08	.34	.42	.10	64	99
14...	1200	617	107	13.4	2	--	--	--	--	48	80
17...	1130	619	115	15.3	2	--	--	--	--	47	79
21...	1425	623	118	17.0	2	.05	.22	.27	.07	41	69
24...	1100	625	103	15.0	2	--	--	--	--	46	78
28...	1200	625	75	16.5	2	--	--	--	--	74	125
JUL											
01...	1230	600	72	15.6	2	--	--	--	--	70	113
06...	1115	633	79	18.6	3	.13	.19	.32	.05	32	55
08...	1145	635	78	18.8	2	--	--	--	--	34	58
12...	1155	680	80	16.6	2	--	--	--	--	31	57
16...	1220	645	100	18.5	6	--	--	--	--	45	78
19...	1400	630	80	19.6	8	.08	.27	.35	.08	38	65
22...	1230	630	77	18.1	4	--	--	--	--	26	44
26...	1345	645	106	19.2	4	--	--	--	--	30	52
29...	1115	647	92	16.7	7	--	--	--	--	33	58
AUG											
03...	1215	660	105	16.1	7	.20	.33	.53	.09	43	77
06...	1400	655	94	16.8	4	--	--	--	--	36	64
10...	1020	675	104	16.2	3	.11	.23	.34	.06	25	46
12...	1045	635	106	18.6	3	.10	.26	.36	.06	23	39
16...	1315	630	91	15.5	3	--	--	--	--	20	34
20...	1045	590	102	15.5	3	--	--	--	--	26	41
24...	1145	580	99	17.5	3	--	--	--	--	19	30
27...	1215	555	100	15.2	2	.05	.36	.41	.06	12	18
31...	1230	550	102	17.6	3	--	--	--	--	12	18
SEP											
02...	1430	545	77	18.1	2	--	--	--	--	14	21
07...	1300	540	76	14.0	2	.07	.14	.21	.04	10	15
09...	1115	555	93	13.6	2	--	--	--	--	7	10
15...	1230	485	110	14.6	2	--	--	--	--	8	10
17...	1315	498	102	15.3	2	--	--	--	--	7	9.4
20...	1445	502	102	--	1	--	--	--	--	4	5.4
23...	1145	460	105	15.8	1	.08	.16	.24	.05	1	1.2
27...	1300	440	105	16.1	2	--	--	--	--	5	5.9
OCT											
01...	1230	448	110	15.8	2	--	--	--	--	2	2.4
04...	1530	458	123	12.4	2	.04	.18	.22	.06	6	7.4
08...	1145	425	122	13.5	2	--	--	--	--	7	8.0
12...	1445	430	121	13.9	2	--	--	--	--	5	5.8
15...	1145	455	115	11.1	2	--	--	--	--	8	9.8
18...	1300	465	123	9.7	1	.48	.16	.64	.04	6	7.5

12485012 ROZA CANAL BELOW SULPHUR CREEK WASTEWAY, NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°22'20", long 119°57'27", in NE¼NE¼ sec.8, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, at Sulphur Creek Wasteway, 3.8 mi (6.1 km) northeast of Sunnyside.

PERIOD OF RECORD.--March to October 1976 (discontinued).

WATER QUALITY DATA, MARCH TO OCTOBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1976											
18...	1450	142	141	8.1	22	.08	.37	.45	.18	62	30
22...	1440	214	132	5.6	11	--	--	--	--	22	13
26...	1140	223	132	7.0	14	--	--	--	--	55	33
29...	1630	227	117	7.6	13	--	--	--	--	38	23
APR											
02...	1545	305	98	7.0	6	--	--	--	--	23	19
05...	1540	306	97	10.8	3	.01	.18	.19	.02	14	12
09...	1130	341	96	7.9	10	--	--	--	--	31	29
13...	1155	338	92	8.7	11	--	--	--	--	65	59
15...	1640	330	94	7.8	6	--	--	--	--	51	45
19...	1400	339	86	10.6	3	.05	.32	.37	.07	22	20
22...	1315	362	80	10.0	4	--	--	--	--	30	29
27...	1150	366	89	9.1	4	--	--	--	--	44	43
30...	1115	357	112	10.7	4	--	--	--	--	46	46
MAY											
03...	1620	404	78	13.6	4	.01	.26	.27	.07	41	45
07...	0925	424	95	11.7	6	--	--	--	--	65	74
10...	1215	480	75	14.0	6	--	--	--	--	95	123
13...	1115	490	67	12.8	7	--	--	--	--	108	143
17...	1115	487	92	12.8	4	--	--	--	--	115	151
21...	0930	507	92	11.2	5	.10	.22	.32	.09	86	118
24...	1115	507	82	12.4	3	--	--	--	--	96	131
27...	1210	489	78	11.8	3	--	--	--	--	124	164
JUN											
01...	1200	460	70	11.3	3	.14	.21	.35	.09	76	94
03...	1045	457	80	11.9	3	--	--	--	--	78	96
08...	1015	452	104	15.6	3	.09	.29	.38	.08	53	65
09...	0750	456	103	14.8	2	.06	.32	.38	.09	88	108
10...	1230	489	103	15.6	4	.11	.27	.38	.10	87	115
14...	1145	486	103	13.6	2	--	--	--	--	89	117
17...	1115	513	112	15.6	2	--	--	--	--	105	145
21...	1400	513	116	16.8	2	.07	.26	.33	.08	67	93
24...	1045	525	110	15.4	2	--	--	--	--	69	98
28...	1145	527	89	17.1	2	--	--	--	--	75	107
JUL											
01...	1215	528	73	14.9	2	--	--	--	--	94	134
06...	1100	528	79	19.0	2	.13	.24	.37	.07	77	110
08...	1130	527	78	19.0	3	--	--	--	--	78	111
12...	1135	535	92	16.6	2	--	--	--	--	51	74
16...	1305	534	98	19.8	5	--	--	--	--	53	76
19...	1315	528	79	19.6	6	.09	.24	.33	.07	104	148
22...	1130	546	95	18.5	7	--	--	--	--	54	80
26...	1330	571	107	19.4	6	--	--	--	--	39	60
29...	1100	545	90	17.1	9	--	--	--	--	87	128
AUG											
03...	1300	549	112	17.0	6	.21	.32	.53	.09	53	79
06...	1440	549	92	17.6	6	--	--	--	--	53	79
10...	1040	552	104	16.7	3	.10	.19	.29	.07	38	57
12...	1105	522	106	19.2	3	.08	.20	.28	.07	42	59
16...	1245	496	94	15.9	5	--	--	--	--	41	55
20...	1100	520	108	16.1	5	--	--	--	--	43	60
24...	1215	518	101	18.0	4	--	--	--	--	36	50
27...	1245	478	100	15.9	3	.09	.31	.40	.06	15	19
31...	1300	461	107	18.4	3	--	--	--	--	17	21
SEP											
02...	1415	460	98	18.5	2	--	--	--	--	18	22
07...	1245	464	94	14.9	4	.07	.21	.28	.06	27	34
09...	1100	465	79	14.0	4	--	--	--	--	32	40
15...	1215	421	120	14.9	2	--	--	--	--	21	24
17...	1330	404	110	15.6	2	--	--	--	--	15	16
20...	1430	385	102	--	2	--	--	--	--	16	17
23...	1130	360	102	15.9	2	.06	.19	.25	.05	25	24
27...	1245	359	105	16.4	2	--	--	--	--	12	12
OCT											
01...	1215	359	110	16.1	2	--	--	--	--	9	8.7
04...	1515	360	112	12.8	2	.04	.16	.20	.06	8	7.8
08...	1130	340	123	13.6	2	--	--	--	--	8	7.3
12...	1415	341	122	14.1	2	--	--	--	--	8	7.4
15...	1130	333	95	11.4	2	--	--	--	--	15	13
18...	1230	347	117	9.9	2	.07	.16	.23	.05	9	8.4

12485014 ROZA CANAL AT BLACK CANYON CREEK NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°20'49", long 119°53'53", in SE¼SE¼ sec.14, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, at Black Canyon Creek crossing 5.0 mi (8.0 km) east of Sunnyside.

PERIOD OF RECORD.--March to October 1976 (discontinued).

WATER QUALITY DATA, MARCH TO OCTOBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1976											
18...	1510	170	130	8.0	31	.12	.36	.46	.10	173	79
22...	1415	170	132	5.6	16	--	--	--	--	56	25
26...	1120	200	132	6.8	17	--	--	--	--	83	45
29...	1425	210	97	8.2	12	--	--	--	--	60	24
APR											
02...	1430	282	96	7.2	8	--	--	--	--	36	26
05...	1615	278	93	10.8	3	.05	.16	.21	.03	26	18
09...	1115	271	83	8.2	10	--	--	--	--	46	34
13...	1045	300	75	8.7	12	--	--	--	--	71	58
15...	1215	287	98	8.4	8	--	--	--	--	46	37
19...	1500	302	95	10.8	3	.00	.28	.28	.05	16	13
22...	1230	305	100	10.2	4	--	--	--	--	30	25
27...	1250	316	86	10.0	4	--	--	--	--	56	47
30...	1100	320	112	10.7	4	--	--	--	--	44	38
MAY											
03...	1640	330	100	13.8	4	.01	.28	.29	.08	46	41
07...	1025	370	96	11.8	7	--	--	--	--	78	70
10...	1200	395	82	14.1	7	--	--	--	--	119	127
13...	1100	450	89	13.5	8	--	--	--	--	135	164
17...	1100	465	90	13.1	4	--	--	--	--	149	187
21...	1245	470	97	11.8	5	.10	.31	.41	.12	102	129
24...	1100	470	80	12.4	3	--	--	--	--	100	127
27...	1230	455	82	13.2	3	--	--	--	--	126	155
JUN											
01...	1130	430	72	11.8	3	.12	.28	.32	.11	72	84
03...	1630	422	73	12.2	3	--	--	--	--	85	97
08...	0945	397	106	16.5	3	.07	.25	.32	.04	75	80
10...	1245	435	106	16.5	4	.10	.32	.42	.08	90	106
14...	1130	425	113	14.2	2	--	--	--	--	93	107
17...	1100	475	104	16.1	3	--	--	--	--	101	130
21...	1345	470	123	17.5	3	.09	.33	.42	.10	72	91
24...	1030	475	110	16.0	3	--	--	--	--	81	104
29...	1130	480	89	17.9	2	--	--	--	--	89	115
JUL											
01...	1200	470	72	15.5	3	--	--	--	--	96	122
06...	1045	480	102	19.6	2	.14	.40	.54	.11	86	109
08...	1115	480	78	19.8	4	--	--	--	--	92	119
12...	1120	480	87	17.4	2	--	--	--	--	80	104
16...	1355	480	96	20.9	14	--	--	--	--	137	178
19...	1245	480	80	20.2	7	.12	.26	.38	.11	71	92
22...	1100	490	87	19.0	12	--	--	--	--	82	108
26...	1315	515	105	20.2	4	--	--	--	--	51	71
29...	1045	500	92	17.5	12	--	--	--	--	79	107
AUG											
03...	1345	490	110	17.6	7	.22	.31	.53	.10	76	98
06...	1330	490	92	18.3	5	--	--	--	--	63	83
10...	1100	490	100	17.3	4	.09	.21	.30	.07	42	56
12...	1200	485	93	19.7	3	.08	.19	.27	.07	43	56
16...	1230	470	112	18.2	5	--	--	--	--	48	61
20...	1245	470	86	16.9	6	--	--	--	--	47	60
24...	1400	465	96	18.8	4	--	--	--	--	32	40
27...	1330	430	93	18.9	3	.05	.26	.31	.07	21	24
31...	1430	405	90	19.3	3	--	--	--	--	14	15
SEP											
02...	1315	405	100	18.9	3	--	--	--	--	26	26
07...	1230	400	79	15.4	4	.06	.18	.24	.06	30	32
09...	1045	395	93	14.2	4	--	--	--	--	29	31
15...	1200	360	105	15.0	2	--	--	--	--	21	20
17...	1415	355	110	16.1	2	--	--	--	--	19	18
20...	1415	335	100	--	2	--	--	--	--	14	13
23...	1115	325	103	16.1	2	.06	.32	.38	.06	15	13
27...	1200	303	102	16.4	2	--	--	--	--	15	12
OCT											
01...	1115	312	112	15.9	2	--	--	--	--	20	17
04...	1500	320	112	13.0	2	.03	.18	.21	.06	10	8.6
08...	1030	300	120	13.5	2	--	--	--	--	15	12
12...	1245	289	122	13.7	2	--	--	--	--	9	7.0
15...	1045	298	92	11.5	3	--	--	--	--	8	6.4
18...	1130	252	123	9.7	2	.06	.20	.26	.05	34	23

12485016 ROZA CANAL AT FACTORY ROAD NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°19'02", long 119°53'28", on line between SW¼ sec.25 and NW¼ sec.36, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, at Factory Road crossing, 5.2 mi (8.4 km) east of Sunnyside.

PERIOD OF RECORD.--March to October 1976 (discontinued).

WATER QUALITY DATA, MARCH TO OCTOBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1976											
18...	1550	192	141	4.0	22	.19	.60	.50	.14	96	50
22...	1455	173	110	5.6	18	--	--	--	--	42	20
26...	1100	181	137	6.4	17	--	--	--	--	46	22
29...	1340	193	98	7.6	14	--	--	--	--	39	20
APR											
02...	1330	230	95	6.8	15	--	--	--	--	59	37
05...	1655	245	95	10.1	3	.30	.13	.13	.06	21	14
09...	1040	225	88	8.6	10	--	--	--	--	48	29
13...	1015	249	86	8.8	13	--	--	--	--	88	46
15...	1245	249	77	7.7	7	--	--	--	--	59	40
19...	1600	247	100	10.6	5	.01	.19	.20	.05	17	11
22...	1145	275	108	9.7	4	--	--	--	--	33	25
27...	1305	280	88	10.0	5	--	--	--	--	72	56
29...	1025	275	112	10.4	5	--	--	--	--	50	37
MAY											
03...	1720	297	98	14.0	5	.05	.29	.36	.11	76	61
07...	1040	302	94	12.0	8	--	--	--	--	93	75
10...	1115	312	83	13.8	8	--	--	--	--	158	133
13...	1015	363	78	13.0	11	--	--	--	--	196	190
17...	1015	358	92	12.7	5	--	--	--	--	216	204
21...	1200	380	94	12.4	6	.04	.28	.37	.11	140	144
24...	1015	383	92	12.6	4	--	--	--	--	139	144
27...	1300	380	56	13.3	3	--	--	--	--	142	146
JUN											
01...	1045	382	70	11.6	3	.11	.22	.33	.09	98	101
03...	0945	372	90	11.9	3	--	--	--	--	98	98
08...	0900	360	82	16.0	4	.09	.30	.39	.11	98	95
10...	1340	368	100	16.7	5	.09	.28	.37	.10	125	124
14...	1045	367	110	14.0	3	--	--	--	--	150	149
17...	1015	363	103	15.8	4	--	--	--	--	192	194
21...	1305	390	120	17.5	3	.07	.29	.36	.11	154	162
24...	0945	398	112	16.0	4	--	--	--	--	166	178
28...	1045	400	92	17.3	4	--	--	--	--	170	186
JUL											
01...	1115	396	73	15.9	3	--	--	--	--	156	167
06...	1000	395	102	19.2	2	.12	.66	.78	.12	154	164
08...	1030	394	101	19.6	4	--	--	--	--	145	154
12...	1050	404	86	17.0	3	--	--	--	--	110	120
16...	1410	403	96	21.3	12	--	--	--	--	117	127
19...	1200	394	88	20.5	11	.10	.36	.46	.10	104	111
22...	1015	408	82	19.9	16	--	--	--	--	154	170
26...	1230	430	110	20.4	12	--	--	--	--	101	117
29...	1000	410	92	17.7	12	--	--	--	--	32	35
AUG											
03...	1410	420	110	17.6	12	.28	.41	.69	.12	92	104
06...	1345	418	86	18.4	9	--	--	--	--	106	120
10...	1315	438	104	18.2	6	.10	.29	.39	.08	80	95
12...	1215	400	108	19.9	7	.08	.26	.34	.07	52	56
16...	1145	404	103	16.1	6	--	--	--	--	81	88
20...	1300	398	156	17.1	7	--	--	--	--	60	66
24...	1415	398	101	16.1	5	--	--	--	--	59	63
27...	1345	377	96	17.0	4	.05	.26	.29	.07	31	32
31...	1445	362	90	19.6	4	--	--	--	--	23	22
SEP											
02...	1300	360	82	19.0	3	--	--	--	--	34	33
07...	1145	352	80	15.6	4	.04	.22	.26	.08	39	37
09...	1000	362	92	13.8	4	--	--	--	--	66	63
15...	1115	328	100	14.8	3	--	--	--	--	26	23
17...	1450	322	102	16.3	2	--	--	--	--	29	25
20...	1200	304	102	16.2	2	--	--	--	--	21	17
23...	1030	275	98	16.0	2	.03	.21	.24	.06	18	13
27...	1145	289	98	16.3	2	--	--	--	--	19	15
OCT											
01...	1100	290	110	15.9	3	--	--	--	--	21	16
04...	1415	293	123	13.0	2	.02	.21	.23	.07	25	20
08...	1015	278	120	13.3	2	--	--	--	--	14	11
12...	1230	267	122	13.9	2	--	--	--	--	10	7.2
15...	1030	209	98	11.1	3	--	--	--	--	16	12
18...	1115	259	120	9.3	2	.04	.14	.18	.05	12	8.4

12485018 ROZA CANAL AT WILGUS ROAD NEAR GRANDVIEW, WA

LOCATION.--Lat 46°17'22", long 119°49'48", in SW¼SW¼ sec.4, T.9 N., R.24 E., Benton County, Hydrologic Unit 17030003, at Wilgus Road crossing, 3.8 mi (6.1 km) northeast of Grandview.

PERIOD OF RECORD.--March 1975 to October 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO OCTOBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
20...	1455	117	145	6.0	--	139	44
24...	1515	87	140	6.5	6	146	34
26...	1525	96	140	5.0	8	56	14
28...	1330	130	140	5.0	20	45	16
APR							
02...	1015	141	127	8.0	3	23	8.8
04...	1515	159	129	7.0	2	18	7.7
08...	1520	175	130	9.0	1	13	6.1
10...	1510	151	120	10.5	3	16	6.5
15...	1600	157	170	9.5	3	23	9.7
21...	1520	177	120	11.0	7	28	13
23...	1530	196	120	11.0	10	53	28
28...	0945	221	120	9.0	20	83	50
MAY							
01...	1300	300	120	12.0	10	43	35
05...	0925	300	120	10.0	10	46	37
08...	1655	300	120	15.0	10	65	53
14...	1530	300	115	13.0	30	153	124
18...	1105	326	77	13.0	20	133	117
23...	1030	306	90	14.0	30	135	112
29...	1425	326	95	12.0	20	115	101
JUN							
01...	1050	287	100	18.0	20	106	82
03...	1030	329	98	12.0	20	108	96
06...	1300	348	95	18.0	30	139	131
10...	1125	341	100	17.0	20	112	103
16...	1300	352	95	17.0	20	118	112
19...	1125	359	100	15.0	20	94	91
23...	1300	362	100	18.0	20	95	93
25...	1400	363	100	17.0	10	67	66
27...	1400	371	100	15.0	20	60	60
JUL							
02...	1415	111	110	19.0	20	57	17
04...	1400	353	110	18.0	20	89	85
09...	1415	337	125	19.0	20	102	93
12...	1400	349	110	20.0	20	98	92
16...	0915	301	100	17.0	10	74	60
18...	0915	303	100	18.6	10	71	58
22...	1115	309	100	21.0	10	70	58
28...	1130	307	90	23.0	10	62	51
31...	1145	300	95	18.0	10	51	41
AUG							
04...	1115	306	95	18.0	10	128	106
14...	1330	188	96	19.2	6	59	30
19...	1305	77	100	18.0	5	61	13
21...	0815	316	110	16.4	3	48	41
26...	1030	318	100	16.5	1	32	27
SEP							
02...	1015	258	110	14.0	2	31	22
09...	1030	232	100	17.3	1	32	20
17...	0850	233	100	15.5	1	35	22
23...	1010	233	110	14.7	1	25	16

12485018 ROZA CANAL AT WILGUS ROAD NEAR GRANDVIEW, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO OCTOBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR., 1976											
19...	1615	160	118	8.0	38	.16	.60	.76	.21	326	140
23...	1340	136	128	6.3	13	--	--	--	--	50	18
26...	1600	155	140	6.1	19	--	--	--	--	86	36
29...	1325	180	180	13.0	13	--	--	--	--	43	21
APR											
02...	1315	230	105	7.4	15	--	--	--	--	71	44
05...	1715	212	92	9.8	4	.06	.16	.22	.06	34	19
09...	1030	187	96	9.3	9	--	--	--	--	45	23
13...	1600	205	83	9.4	12	--	--	--	--	81	45
15...	1005	194	89	7.4	7	--	--	--	--	72	38
19...	1645	197	95	10.8	7	.00	.25	.25	.05	29	15
22...	1130	198	109	10.0	4	--	--	--	--	34	18
27...	1350	232	93	10.3	6	--	--	--	--	97	61
30...	1015	234	102	11.2	5	--	--	--	--	51	32
MAY											
03...	1735	235	100	14.4	6	.00	.30	.30	.11	73	46
07...	1125	239	89	12.9	9	--	--	--	--	80	52
10...	1100	235	82	13.6	9	--	--	--	--	112	71
13...	1000	282	80	11.9	12	--	--	--	--	170	129
17...	1000	287	95	12.7	6	--	--	--	--	175	136
21...	1145	292	94	12.0	6	.10	.35	.45	.11	120	95
24...	1000	302	85	12.5	4	--	--	--	--	126	103
27...	1315	313	54	13.5	4	--	--	--	--	155	131
JUN											
01...	1030	315	75	11.2	3	.12	.30	.42	.12	108	92
03...	0915	302	94	11.5	4	--	--	--	--	103	84
08...	0845	282	99	15.9	3	.07	.32	.39	.11	90	66
10...	1425	290	100	18.0	5	.06	.29	.35	.12	118	92
14...	1030	292	105	14.1	4	--	--	--	--	130	102
17...	1000	298	104	16.1	3	--	--	--	--	131	105
21...	1250	302	118	18.2	3	.05	.32	.37	.10	112	91
24...	0930	308	109	16.0	4	--	--	--	--	137	114
28...	1030	314	74	17.3	3	--	--	--	--	157	133
JUL											
01...	1100	306	72	16.6	4	--	--	--	--	121	100
06...	0945	308	89	19.6	3	.14	.72	.86	.12	109	91
08...	1015	313	90	19.6	3	--	--	--	--	136	115
12...	1035	312	87	17.2	3	--	--	--	--	106	88
16...	1500	315	94	22.1	13	--	--	--	--	133	113
19...	1130	310	80	21.0	12	.10	.39	.49	.12	140	117
22...	0945	317	80	19.9	16	--	--	--	--	145	124
26...	1215	329	115	20.8	11	--	--	--	--	87	77
29...	0945	317	115	18.2	12	--	--	--	--	113	97
AUG											
03...	1515	327	111	18.5	12	.26	.37	.63	.12	130	115
06...	1445	328	93	19.0	4	--	--	--	--	106	94
10...	1330	329	104	18.8	7	.10	.27	.37	.09	76	68
12...	1305	308	102	20.0	4	.06	.20	.26	.08	63	52
16...	1115	315	94	16.2	8	--	--	--	--	76	65
20...	1345	325	105	17.5	7	--	--	--	--	88	77
24...	1545	302	101	19.5	6	--	--	--	--	50	41
27...	1445	292	102	17.5	4	.03	.22	.25	.08	35	28
31...	1600	283	110	20.0	4	--	--	--	--	26	20
SEP											
02...	1130	284	90	18.9	2	--	--	--	--	31	24
07...	1115	275	77	16.0	4	.03	.17	.20	.07	38	28
09...	0945	285	92	13.6	4	--	--	--	--	51	39
15...	1045	269	98	14.6	3	--	--	--	--	33	24
17...	1515	260	105	--	2	--	--	--	--	28	20
20...	1145	267	94	--	2	--	--	--	--	21	15
23...	1015	218	98	15.6	2	.06	.36	.42	.05	15	8.8
27...	1045	235	105	16.1	2	--	--	--	--	16	10
OCT											
01...	1015	228	112	15.5	3	--	--	--	--	26	16
04...	1345	240	111	13.4	3	.03	.20	.23	.07	28	18
08...	0930	225	123	12.6	4	--	--	--	--	27	16
12...	1130	223	128	13.5	3	--	--	--	--	21	13
15...	0945	238	99	10.6	3	--	--	--	--	21	13
18...	1000	266	120	8.6	3	.07	.32	.39	.05	18	12

12483960 WENAS CREEK AT WENAS ROAD CROSSING NEAR SELAH, WA

LOCATION.--Lat 46°30'02", long 120°31'10", in NE¼NW¼ sec.13, T.14 N., R.18 E., Yakima County, Hydrologic Unit 17030001, 4 mi (6.4 km) north of Selah at Wenas Road crossing.

DRAINAGE AREA.--186 mi² (482 km²).

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR., 1975							
03...	1600	--	--	0.0	6	160	--
14...	1100	74	173	3.5	15	75	15
19...	1010	78	180	6.0	15	78	17
21...	0855	76	170	3.5	8	--	--
25...	0935	31	235	4.0	7	40	3.3
27...	0915	30	260	2.5	7	27	2.2
31...	1110	47	200	5.0	20	111	14
APR							
03...	0900	66	170	6.0	5	76	14
07...	0930	54	185	6.0	4	48	7.0
09...	1015	78	170	5.0	5	121	25
14...	0955	290	140	5.5	15	529	414
18...	1010	260	120	8.0	--	336	236
22...	1010	210	135	8.0	25	175	99
26...	1010	183	140	8.0	10	155	77
29...	0940	170	130	8.0	10	141	65
MAY							
02...	1025	--	135	9.0	10	155	--
06...	0955	--	125	10.0	10	76	--
13...	1050	--	125	14.0	10	69	--
15...	0925	--	130	13.0	10	69	--
18...	1730	--	125	16.0	10	92	--
29...	1010	104	175	13.0	7	37	10
31...	1010	27	220	18.0	7	37	2.7
JUN							
01...	1710	25	200	18.0	10	47	3.3
04...	1620	26	190	12.0	8	58	4.1
09...	1225	20	235	16.0	6	35	1.9
11...	1345	65	250	17.0	5	36	6.3
18...	1155	15	240	17.0	6	21	.85
23...	1950	11	255	19.0	6	13	.39
24...	1600	54	260	19.0	6	16	2.3
28...	1600	9.0	280	17.0	3	11	.26
JUL							
01...	1600	6.2	320	19.0	6	8	.13
03...	1600	4.0	300	18.0	6	12	.13
08...	1115	27	440	19.0	2	15	1.1
11...	1115	3.0	440	20.0	3	--	--
21...	1600	1.1	525	22.9	3	16	.05
29...	1105	.80	530	22.8	6	20	.04

12483960 WENAS CREEK AT WENAS ROAD CROSSING NEAR SELAH, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
AUG , 1975							
01...	1310	1.1	500	19.2	2	6	.02
13...	1500	.20	402	23.6	1	28	.02
19...	0810	.90	480	16.3	2	9	.02
SEP							
05...	0815	3.5	420	13.2	2	35	.33
12...	0925	3.2	440	16.5	1	9	.08
19...	0920	4.9	420	10.5	2	10	.13
25...	1020	4.9	380	10.2	2	24	.32
OCT							
20...	1615	4.5	380	10.6	1	6	.07
MAR , 1976							
03...	0805	11	211	.6	6	19	.57
10...	0855	13	295	5.4	5	13	.46
17...	0810	20	241	6.7	22	57	3.1
23...	0820	44	139	2.7	20	63	7.5
25...	1510	41	172	7.0	18	56	6.0
31...	0945	54	167	6.1	39	198	29
APR							
01...	1845	54	161	8.5	13	77	11
05...	1505	84	145	12.5	18	590	143
09...	0950	282	131	8.0	31	761	581
13...	0820	166	132	7.6	22	261	117
15...	1535	91	148	8.7	12	242	59
20...	1520	72	153	12.2	8	108	21
23...	0815	54	150	8.0	5	66	8.7
26...	1615	31	158	11.6	5	46	3.9
29...	1505	35	157	14.0	5	38	3.7
MAY							
03...	1810	47	151	15.8	6	82	10
06...	1420	41	145	15.0	4	36	4.2
10...	1830	43	134	13.6	5	66	8.0
13...	1645	35	131	17.2	5	37	3.5
17...	1530	31	113	15.2	4	27	2.3
20...	1445	19	142	18.5	4	22	1.1
24...	1600	12	108	14.8	2	25	.86
27...	1635	8.8	235	13.9	2	22	.52
JUN							
02...	0815	5.4	295	8.5	1	6	.09
03...	1545	5.4	313	18.8	2	9	.13
07...	1445	3.5	325	20.4	2	5	.05
11...	0815	3.4	295	12.5	2	6	.06
15...	0730	3.4	302	14.7	2	9	.08
25...	0830	3.0	325	10.5	2	7	.06
28...	1615	1.3	375	26.0	2	4	.01
JUL							
06...	2000	2.2	417	24.6	1	6	.04
13...	1150	2.8	375	17.7	1	8	.06
20...	0815	1.0	375	19.2	2	--	--
27...	1030	2.0	385	16.2	2	4	.02
AUG							
02...	1515	1.5	429	22.8	1	6	.02
10...	0830	.30	465	16.5	2	6	.00
17...	1645	.40	455	18.6	1	11	.01
23...	1700	.50	475	19.9	2	6	.01
30...	1900	.10	555	21.6	2	12	.00
SEP							
07...	1915	1.1	395	15.8	2	10	.03
14...	1100	1.0	395	16.0	2	7	.02
21...	0800	2.0	395	--	2	7	.04
27...	1645	1.9	430	10.7	2	8	.04

12488000 BUMPING RIVER NEAR NILE, WA

LOCATION.--Lat 46°52'48", long 121°16'52", in NE¼ sec.13, T.16 N., R.12 E. (unsurveyed), Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on right bank 1.2 mi (1.9 km) downstream from spillway of Bumping Lake Dam, 1.3 mi (2.1 km) southwest of Goosepraire post office, 8.6 mi (13.8 km) southwest of town of American River, 15.8 mi (25.4 km) west of Nile, and at mile 15.8 (25.4 km).

DRAINAGE AREA.--70.7 mi² (183.1 km²).

PERIOD OF RECORD.--June to July 1906, April 1909 to current year. Water temperatures: October 1970 to May 1971.

REVISED RECORDS.--WSP 369: 1911. WSP 1286: 1911. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,330 ft (1,015 m), from topographic map. Prior to June 13, 1913, nonrecording gages at several sites within 1.3 mi (2.1 km) upstream of present site at different datums. June 13, 1913 to September 30, 1972, water-stage recorder at site 0.8 mi (1.3 km) upstream at different datum.

REMARKS.--Records good. Flow completely regulated by dam at Bumping Lake.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation; 7 discharge measurements made and records reviewed by Geological Survey.

AVERAGE DISCHARGE.--68 years (water years 1910-77), 296 ft³/s (8.383 m³/s), 214,500 acre-ft/yr (264 hm³/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,180 ft³/s (147 m³/s) Dec. 29, 1917, gage height, 9.33 ft (2.844 m), site and datum then in use; practically no flow when gates in outlet conduit are closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 704 ft³/s (19.9 m³/s) June 7, gage height, 3.70 ft (1.128 m); minimum, 2.6 ft³/s (0.736 m³/s) part or all of each day Mar. 2-8, gage height, 1.16 ft (0.354 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	171	111	73	108	89	2.7	6.3	26	376	119	183	234
2	168	108	75	107	86	2.7	6.1	25	630	102	183	234
3	162	108	69	93	62	2.7	6.1	26	610	93	183	230
4	158	104	67	88	6.0	2.6	5.1	24	600	91	225	234
5	155	102	66	82	6.3	2.6	6.3	23	580	93	254	230
6	150	125	64	77	6.3	2.6	7.6	22	630	89	254	230
7	148	113	64	72	6.3	2.6	10	23	687	86	251	226
8	145	106	73	70	3.9	3.5	12	21	630	86	251	226
9	142	97	73	65	3.3	3.5	12	20	520	82	251	223
10	128	91	72	64	3.1	3.1	11	23	650	77	251	223
11	135	86	69	61	3.1	2.9	11	22	600	75	260	226
12	132	82	65	61	2.9	2.9	11	32	350	69	244	216
13	130	70	64	59	2.9	2.9	12	96	365	69	237	216
14	132	77	62	58	3.5	2.9	11	113	329	64	236	212
15	135	77	61	58	3.5	2.9	11	209	300	66	234	212
16	125	79	62	58	2.9	2.7	11	223	265	65	289	209
17	113	84	62	62	2.9	2.7	10	220	269	59	325	209
18	104	93	62	93	2.9	2.7	9.6	220	262	109	321	206
19	142	95	61	162	2.9	2.7	9.0	220	251	132	321	206
20	168	93	58	166	2.7	2.7	9.0	230	230	122	309	202
21	145	89	56	183	2.7	2.9	9.6	289	212	122	305	202
22	128	88	58	176	2.7	3.5	11	317	195	161	301	198
23	113	86	59	162	2.9	3.7	12	321	183	166	301	198
24	106	84	56	150	3.5	3.6	16	309	171	166	301	195
25	102	86	58	146	2.9	3.5	18	289	162	169	297	195
26	122	82	77	130	2.9	3.7	20	289	150	180	297	192
27	130	79	86	122	2.9	4.6	21	277	138	166	293	192
28	125	77	88	113	2.7	3.9	22	262	135	166	289	189
29	115	77	112	106	---	3.9	24	248	120	166	259	189
30	106	75	140	100	---	3.7	24	237	115	163	237	186
31	106	---	122	93	---	3.7	---	265	---	163	237	---
TOTAL	4190	2861	2222	3150	299.6	97.2	356.7	4870	9866	3700	8165	6334
MEAN	135	95.4	71.7	102	10.7	3.14	11.9	157	329	119	263	211
MAX	171	125	140	183	89	4.6	24	321	687	180	325	234
MIN	102	75	56	58	2.7	2.6	6.1	20	115	59	183	186
AC-FT	8310	5670	4410	6250	594	193	708	9660	19570	7340	16200	12560
†	-4,190	-950	-150	-200	+4,930	+4,310	+15,180	+8,280	-790	-2,960	-13,040	-7,960
MEAN‡	66.0	79.3	69.3	98.4	99.4	73.2	253	292	315	71.2	51.4	77.3
CFSM‡	.93	1.12	.98	1.39	1.41	1.04	3.58	4.13	4.46	1.01	.73	1.09
IN.‡	1.08	1.25	1.13	1.60	1.46	1.20	3.98	4.76	4.97	1.16	.84	1.22
AC-FT‡	4,060	4,720	4,260	6,050	5,520	4,500	15,890	17,960	18,740	4,380	3,160	4,600

CAL YR 1976: TOTAL 117,916.0 MEAN 322 MAX 1,280 MIN 16 AC-FT 234,000
DO......: MEAN‡ 310 CFSM‡4.38 IN‡ 59.60 AC-FT‡ 224,700
WTR YR 1977: TOTAL 46,061.1 MEAN 126 MAX 687 MIN 2.6 AC-FT 91,370
DO......: MEAN‡ 127 CFSM‡1.80 IN‡ 24.35 AC-FT‡ 91,830

† Change in contents, in acre-feet, in Bumping Lake.
‡ Adjusted for change in contents in Bumping Lake.

12488500 AMERICAN RIVER NEAR NILE, WA

LOCATION.--Lat 46°58'40", long 121°10'03", in SE¼NW¼ sec.12, T.17 N., R.15 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on right bank 300 ft (91 m) upstream from Bumping Lake Road bridge, 4.9 mi (7.9 km) downstream from Hall Creek, 16.0 mi (25.7 km) northwest of Nile, and at mile 0.5 (0.8 km).

DRAINAGE AREA.--78.9 mi² (204.4 km²).

PERIOD OF RECORD.--April 1909 to March 1912, July to September 1913, June to September 1914, June to September 1915, October 1939 to current year. Monthly discharge only for some periods, published in WSP 1316. Chemical analyses October 1962 to September 1964, water temperatures October 1968 to May 1971.

REVISED RECORDS.--WSP 982: 1940-42. WSP 1216: Drainage area. WSP 1286: 1911.

GAGE.--Water-stage recorder. Datum of gage is 2,700.0 ft (822.96 m) above mean sea level (Washington State Highway Department bench mark). Prior to Sept. 12, 1915, nonrecording gage at site 300 ft (91 m) downstream at different datum. Oct. 12 to Dec. 7, 1939, nonrecording gage at present site and datum.

REMARKS.--Records excellent except those for Dec. 20 to Feb. 20, which are fair. No regulation or diversion.

AVERAGE DISCHARGE.--40 years (water years, 1910-11, 1940-77), 246 ft³/s (6.967 m³/s) 42.34 in/yr (1,075 mm/yr) 178,200 acre-ft/yr (220 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,340 ft³/s (94.6 m³/s) Dec. 4, 1975, gage height, 77.37 ft (23.582 m); minimum, 20 ft³/s (0.57 m³/s) Nov. 22, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 625 ft³/s (17.7 m³/s) June 8, gage height, 74.28 ft (22.641 m); minimum dialy, 30 ft³/s (0.85 m³/s) Jan. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	84	48	45	41	50	52	360	437	95	46	51
2	60	75	47	45	43	47	50	354	360	90	45	48
3	59	69	47	43	41	47	52	350	301	89	43	47
4	59	65	46	40	40	46	65	289	437	93	43	61
5	59	63	46	38	39	46	80	240	485	90	49	115
6	58	60	45	37	39	46	102	208	524	87	78	84
7	57	58	47	35	38	49	141	191	571	83	59	70
8	57	58	47	34	38	55	200	184	567	79	52	64
9	56	59	47	33	37	52	184	176	398	76	48	58
10	55	60	46	30	37	48	158	195	335	75	44	55
11	55	59	45	30	43	48	144	197	328	72	43	50
12	54	57	44	32	50	49	139	175	298	72	42	47
13	54	56	44	32	65	47	141	168	305	70	39	46
14	52	54	44	34	64	43	135	171	292	67	38	43
15	52	57	44	40	60	47	130	165	273	65	37	42
16	51	60	45	45	57	44	130	156	244	64	37	41
17	51	67	45	60	55	43	122	149	238	63	36	41
18	50	84	46	80	52	43	116	145	238	63	35	42
19	50	75	45	130	51	42	110	143	225	60	35	46
20	49	69	43	115	51	41	106	158	213	58	34	47
21	49	65	42	90	57	42	107	192	187	56	35	55
22	49	64	42	80	54	44	125	215	181	55	35	55
23	48	61	44	65	50	48	152	225	164	52	35	55
24	49	59	40	55	47	47	213	199	149	51	44	58
25	57	59	41	50	52	46	353	181	143	52	47	60
26	58	56	48	47	47	47	425	203	134	56	48	63
27	56	54	64	45	48	52	352	194	124	59	49	61
28	55	49	57	43	53	48	329	172	114	56	46	59
29	55	49	54	41	---	46	368	158	107	53	46	60
30	52	50	52	40	---	45	354	156	99	51	53	60
31	59	---	48	39	---	47	---	218	---	49	55	---
TOTAL	1686	1855	1443	1573	1349	1445	5135	6287	8451	2101	1376	1684
MEAN	54.4	61.8	46.5	50.7	48.2	46.6	171	203	282	67.8	44.4	56.1
MAX	61	84	64	130	65	55	425	360	571	95	78	115
MIN	48	49	40	30	37	41	50	143	99	49	34	41
CFSM	.69	.78	.59	.64	.61	.59	2.17	2.57	3.57	.86	.56	.71
IN.	.79	.87	.68	.74	.64	.68	2.42	2.96	3.98	.99	.65	.79
AC-FT	3340	3680	2860	3120	2680	2870	10190	12470	16760	4170	2730	3340

CAL YR 1976 TOTAL 88435 MEAN 242 MAX 1060 MIN 40 CFSM 3.07 IN 41.70 AC-FT 175400
WTR YR 1977 TOTAL 34385 MEAN 94.2 MAX 571 MIN 30 CFSM 1.19 IN 16.21 AC-FT 68205

RESERVOIRS IN YAKIMA RIVER BASIN, WA

12474000 KEECHELUS LAKE.--Lat 47°19'21", long 121°20'18", in SE¼NE¼ sec.12, T.21 N., R.11 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, at headgate tower of outlet at dam on Yakima River 3.0 mi (4.8 km) northwest of Martin, 10 mi (16 km) northwest of Easton, and at mile 214.5 (345.1 km). DRAINAGE AREA, 54.7 mi^2 (141.7 km^2). PERIOD OF RECORD, January 1906 to current year. GAGE, water-stage recorder and low water staff gages. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Mar. 24, 1967, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1917; storage began behind crib dam Jan. 12, 1906, behind present dam Aug. 19, 1914. Initial filling of present reservoir June 15, 1920. Usable capacity, 157,800 acre-ft (195 hm^3) between elevation, 2,425.00 ft (739.140 m), invert of gate sill, and 2,517.00 ft (767.182 m), spillway crest. Spillway raised 2 ft (0.6 m) Sept. 12, 1952. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 160,940 acre-ft (198 hm^3) June 5, 1969, elevation, 2,518.23 ft (767.557 m); minimum observed, 448 acre-ft (0.552 hm^3) Sept. 6, 12, 13, 1906 (original crib dam); minimum elevation observed, 2,428.30 ft (740.146 m) Sept. 20, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 158,230 acre-ft (195 hm^3) July 5-8, elevation, 2,517.18 ft (767.236 m); minimum, 10,660 acre-ft (13.1 hm^3) Oct. 1, elevation, 2,433.47 ft (741.722 m).

12475500 KACHESS LAKE.--Lat 47°15'53", long 121°12'16", in SW¼SW¼ sec.34, T.21 N., R.13 E., Kittitas County, Hydrologic Unit 17030001, Wenatchee National Forest, on outlet gate tower at dam on Kachess River, 2.4 mi (3.9 km) northwest of Easton. DRAINAGE AREA, 63.6 mi^2 (164.7 km^2). PERIOD OF RECORD, September 1905 to current year. GAGE, water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Oct. 28, 1966, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1912. Original crib dam, capacity of 21,000 acre-ft (25.9 hm^3), used Sept. 20, 1905, to June 30, 1911. Storage behind present dam began June 30, 1911. Usable capacity, 239,000 acre-ft (295 hm^3) between elevation, 2,192.75 ft (668.350 m), invert of gate sill, and 2,262.00 ft (689.458 m), top of spillway gate. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 244,800 acre-ft (302 hm^3) May 9, 1957, elevation, 2,263.29 ft (689.851 m); minimum observed, 525 acre-ft (0.647 hm^3) Sept. 14, 15, 1910 (original crib dam); minimum elevation observed, 2,197.73 ft (669.868 m) Sept. 25, 27, 1915.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 236,040 acre-ft (291 hm^3) May 4, 5, elevation, 2,261.35 ft (689.259 m); minimum, 81,350 acre-ft (100 hm^3) Sept. 27, 28, elevation, 2,221.68 ft (677.168 m).

12478500 CLE ELUM LAKE.--Lat 47°14'44", long 121°04'24", in NE¼NE¼ sec.10, T.20 N., R.14 E., Kittitas County, Hydrologic Unit 17030001, at dam on Cle Elum River at outlet of Cle Elum Lake, 4.0 mi (6.4 km) northwest of Roslyn, and at mile 8.3 (13.4 km). DRAINAGE AREA, 203 mi^2 (526 km^2). PERIOD OF RECORD, May 1906 to current year. GAGE, water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Mar. 6, 1968, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-filled dam completed in 1933; storage began behind present dam Feb. 26, 1932. Usable capacity, 436,900 acre-ft (539 hm^3) between elevation, 2,110.00 ft (643.128 m), invert of gate sill, and 2,240.00 ft (682.7[illegible] m), top of spillway gate. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 448,520 acre-ft (551 hm^3) May 8, 9, 1957, elevation, 2,241.98 ft (683.356 m); minimum observed, 2,38[illegible] acre-ft (2.93 hm^3) Aug. 31, 1906; minimum elevation observed, 2,114.35 ft (644.454 m) Oct. 14, 1932. Storage was uncontrolled Oct. 3, 1931, to Feb. 26, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 442,540 acre-ft (546 hm^3) May 3, elevation, 2,241.16 ft (683.106 m); minimum observed, 13,470 acre-ft (16.6 hm^3) Sept. 30, elevation, 2,116.74 ft (645.182 m).

12487500 BUMPING LAKE.--Lat 46°52'25", long 121°17'57", in SW¼ sec.14 (unsurveyed), T.16 N., R.12 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, at outlet of dam on Bumping Rumping River, 2.2 mi (3.5 km) southwest of Goose Prairie, 10 mi (16 km) southwest of town of American River, 19 mi (31 km) west of Nile, and at mile 17.0 (27.4 km). DRAINAGE AREA, 69.3 mi^2 (179.5 km^2). PERIOD OF RECORD, June to July 1906, April 909 to current year. GAGE, water-stage recorder. Datum of gage is at mean sea level (Bureau of Reclamation benchmark). Prior to Nov. 23, 1966, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed on natural lake by earth-fill dam completed in 1910; storage began Nov. 3, 1910. Usable capacity, 33,700 acre-ft (41.6 hm^3) between elevation 3,389.00 ft (1,032.967 m), invert of gate sill and 3,426.00 ft (1,044.245 m), spillway crest. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 39,840 acre-ft (49.1 hm^3) June 21, 22, 1925, elevation, 3,430.55 ft (1,045.632 m); minimum observed, 1,130 acre-ft (1.39 hm^3) Feb. 5, 6, 7, 8, 9, 1949, elevation, 3,390.80 ft (1,033.516 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 35,590 acre-ft (43.9 hm^3) June 8, elevation, 3,427.43 ft (1,044.681 m); minimum, 4,100 acre-ft (5.06 hm^3) Jan. 16, elevation, 3,395.37 ft (1,034.909 m).

12491000 RIMROCK LAKE.--Lat 46°39'23", long 121°07'43", in NE¼SW¼ sec.31, T.14 N., R.14 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on upstream spillway pier at Tieton dam on Tieton River at Rimrock, 0.6 mi (1.0 km) upstream from Wildcat Creek, 7.1 mi (11.4 km) upstream from headworks on Tieton Canal, 21 mi (34 km) west of Naches and at mile 21.3 (34.3 km). DRAINAGE AREA, 187 mi^2 (484 km^2). PERIOD OF RECORD, April 1925 to current year. Prior to October 1959, published as Tieton Reservoir. GAGE, water-stage recorder and low water staff gages. Datum of gage is at mean sea level (Bureau of Reclamation bench mark). Prior to Mar. 14, 1967, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earth-fill dam completed in 1925; storage began Apr. 27, 1925. Usable capacity, 198,000 acre-ft (244 hm^3) between elevation 2,766.00 ft (843.077 m), invert of tunnel entrance, and 2,926.00 ft (891.845 m), crest of spillway gates. Figures given herein represent usable contents. Water is used for irrigation.

COOPERATION.--Records furnished by Bureau of Reclamation and reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 201,630 acre-ft (249 hm^3) June 18, 1974, elevation, 2,927.43 ft (892.281 m); minimum observed, 89 acre-ft (0.110 hm^3) Oct. 12, 1926, elevation, 2,766.77 ft (843.311 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 176,600 acre-ft (218 hm^3) June 25, 26, 27, elevation, 2,917.20 ft (889.163 m); minimum, 46,360 acre-feet (57.2 hm^3) Sept. 30, elevation, 2,843.40 ft (866.668 m).

RESERVOIRS IN YAKIMA RIVER BASIN, WA--Continued

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
	12474000 KEECHULUS LAKE			12475500 KACHESS LAKE		
Sept. 30	2,433.46	10,640	---	2,250.02	186,450	---
Oct. 31	2,437.76	16,160	+5,520	2,244.14	162,110	-24,340
Nov. 30	2,447.60	29,060	+12,900	2,245.39	167,190	+5,080
Dec. 31	2,459.39	45,130	+16,070	2,247.75	176,920	+9,730
CAL YR 1976	---	---	-87,080	---	---	-30,230
Jan. 31	2,473.19	65,820	+20,690	2,251.45	192,530	+15,610
Feb. 28	2,481.59	80,170	+14,350	2,254.16	204,190	+11,660
Mar. 31	2,487.57	91,330	+11,160	2,256.54	214,590	+10,400
Apr. 30	2,500.98	119,270	+27,940	2,261.01	234,500	+19,910
May 31	2,510.35	141,140	+21,870	2,258.43	222,950	-11,550
June 30	2,517.09	158,000	+16,860	2,252.58	197,370	-25,580
July 31	2,493.64	103,480	-54,520	2,247.26	174,890	-22,480
Aug. 31	2,436.85	14,990	-88,490	2,242.61	155,980	-18,910
Sept. 30	2,439.31	18,160	+3,170	2,222.02	82,330	-73,650
WTR YR 1977	---	---	+7,520	---	---	-104,120
	12478500 CLE ELUM LAKE			12487500 BUMPING LAKE		
Sept. 30	2,216.03	328,210	---	3,403.41	9,890	---
Oct. 31	2,209.09	299,050	-29,160	3,397.73	5,700	-4,190
Nov. 30	2,214.14	320,170	+21,120	3,396.34	4,750	-950
Dec. 31	2,219.48	343,060	+22,890	3,396.12	4,600	-150
CAL YR 1976	---	---	+20,220	---	---	-9,310
Jan. 31	2,228.55	382,430	+39,370	3,395.82	4,400	-200
Feb. 28	2,234.12	409,040	+26,610	3,402.69	9,330	+4,930
Mar. 31	2,238.85	431,430	+22,390	3,407.87	13,640	+4,310
Apr. 30	2,240.98	441,670	+10,240	3,420.46	26,820	+13,185
May 31	2,230.04	390,150	-51,520	3,427.06	35,100	+8,280
June 30	2,209.77	301,860	-88,290	3,426.46	34,310	-790
July 31	2,162.50	128,310	-173,550	3,424.16	31,350	-2,960
Aug. 31	2,124.50	29,330	-98,980	3,412.75	18,310	-13,040
Sept. 30	2,116.90	13,790	-15,540	3,403.99	10,350	-7,960
WTR YR 1977	---	---	-314,420	---	---	+460
	12491000 RIMROCK LAKE					
Sept. 30	2,879.78	100,300	---			
Oct. 31	2,875.20	92,430	-7,870			
Nov. 30	2,880.57	101,690	+9,260			
Dec. 31	2,884.59	108,910	+7,220			
CAL YR 1976	---	---	-35,510			
Jan. 31	2,890.65	120,280	+11,370			
Feb. 28	2,895.62	130,010	+9,730			
Mar. 31	2,900.52	139,970	+9,960			
Apr. 30	2,907.56	154,880	+14,910			
May 31	2,910.89	162,200	+7,320			
June 30	2,916.71	175,460	+13,260			
July 31	2,905.23	149,860	-25,600			
Aug. 31	2,879.15	99,200	-50,660			
Sept. 30	2,843.63	46,630	-52,570			
WTR YR 1977	---	---	-53,670			

12491500 TIETON RIVER AT TIETON DAM, NEAR NACHES, WA

LOCATION.--Lat 46°39'46", long 121°07'25", in NW¼NE¼ sec.31, T.14 N., R.14 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on left bank 900 ft (270 m) upstream from Wildcat Creek, 1,200 ft (370 m) downstream from Tieton Dam, 19.0 mi (30.6 km) upstream from Oak Creek, 22 mi (35 km) southwest of Naches, and at mile 20.9 (33.6 km).

DRAINAGE AREA.--187 mi² (484 km²).

PERIOD OF RECORD.--August 1908 to December 1912, June to September 1914, June 1918 to March 1921, April 1925 to current year. Monthly discharge only for some periods, published in WSP 1316. Published as "at McAllister Meadows" prior to October 1914 and as "at Rimrock" 1918-19.

REVISED RECORDS.--WSP 369: 1909-10. WSP 1286: 1910, 1928(M), 1935(M). WSP 1316: 1909.

GAGE.--Water-stage recorder. Datum of gage is 2,680.99 ft (817.166 m) above mean sea level (Bureau of Reclamation bench mark). Prior to Oct. 1, 1914, nonrecording gage at site 0.3 mi (0.5 km) upstream at different datum. Oct. 1, 1918, to Mar. 31, 1919, Apr. 27 to Sept. 4, 1925, nonrecording gage, and Sept. 5, 1925, to Apr. 23, 1933, water-stage recorder, at site about 800 ft (240 m) downstream at different datum. Apr. 24, 1933, to Dec. 11, 1934, water-stage recorder at present site at datum 2.0 ft (0.61 m) higher.

REMARKS.--Records good except those below 120 ft³/s (3.40 m³/s), which are fair. No diversion above station. Flow regulated by Rimrock Lake 1,200 ft (370 m) upstream beginning April 1925.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation; 2 discharge measurements made and records reviewed by Geological Survey.

AVERAGE DISCHARGE.--58 years (water years 1909-12, 1919-20, 1926-77), 507 ft³/s (14.36 m³/s), 367,300 acre-ft/yr (453 hm³/yr), adjusted for storage since October 1925.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,450 ft³/s (239 m³/s) Dec. 22, 1933, gage height, 9.24 ft (2.816 m), datum then in use; no flow Apr. 4-6, 10, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,710 ft³/s (48.4 m³/s) Sept. 21, gage height, 5.48 ft (1.670 m); minimum, 0.4 ft³/s (0.011 m³/s) Mar. 29, gage height, 1.06 ft (0.323 m); minimum daily, 0.8 ft³/s (0.023 m³/s) Mar. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	42	114	5.4	4.5	4.2	4.5	325	298	520	798	956
2	976	42	114	5.8	4.2	4.2	5.8	319	298	520	844	988
3	976	42	114	5.4	4.2	4.2	5.8	313	301	525	868	988
4	876	42	114	5.4	4.2	4.2	44	313	301	530	965	988
5	776	42	114	5.4	4.2	4.2	37	301	301	530	1010	926
6	776	42	114	5.4	4.2	4.2	19	298	301	525	1010	886
7	776	42	114	5.4	4.2	4.2	6.4	298	301	535	1010	933
8	776	42	114	5.4	4.2	4.5	6.1	298	301	613	863	1060
9	776	42	95	5.4	4.5	4.2	5.8	272	301	622	843	1140
10	776	42	52	3.5	4.8	4.2	5.1	259	301	622	1020	1140
11	776	42	53	2.0	4.2	4.5	5.1	259	304	622	1130	1130
12	712	42	53	2.2	4.2	4.2	5.1	259	304	622	1180	1130
13	582	42	53	3.5	4.2	4.2	5.1	259	307	622	1190	1190
14	567	41	53	3.9	4.2	4.2	5.1	259	307	629	1190	1220
15	265	41	53	4.8	4.2	4.2	5.1	259	310	756	1190	1210
16	114	40	53	5.1	4.2	4.2	4.5	259	310	844	1270	1230
17	114	40	53	5.1	4.2	4.2	4.5	259	310	844	1230	1290
18	114	40	53	5.1	4.2	4.2	4.5	262	310	809	1270	1290
19	72	40	53	5.1	4.2	4.2	4.5	259	310	704	1420	1410
20	47	39	52	5.1	4.2	4.2	4.5	259	310	704	1580	1560
21	47	39	52	4.8	4.2	4.5	4.5	259	323	704	1500	1640
22	46	39	44	4.5	4.2	3.9	23	259	328	704	1520	1680
23	46	39	20	4.5	4.2	3.9	91	212	328	704	1490	1630
24	46	39	5.8	4.5	4.2	3.9	134	192	347	763	1400	1560
25	45	39	5.8	4.5	4.2	3.9	187	161	356	798	1280	1410
26	45	39	5.8	4.5	4.2	3.9	230	252	360	804	1130	1160
27	43	39	5.8	4.5	4.5	4.2	244	280	440	804	1060	1030
28	43	39	5.8	4.5	4.5	.80	295	286	460	804	1020	952
29	43	80	5.8	4.5	---	1.6	328	286	465	798	942	946
30	42	114	5.4	4.5	---	4.5	325	286	504	798	902	280
31	42	---	5.8	4.5	---	4.5	---	289	---	798	918	---
TOTAL	12345	1333	1750.0	144.2	119.4	124.20	2049.0	8351	9997	21177	35203	34951
MEAN	398	44.4	56.5	4.65	4.26	4.01	68.3	269	333	683	1136	1165
MAX	1010	114	114	5.8	4.8	4.5	328	325	504	844	1580	1680
MIN	42	39	5.4	2.0	4.2	.80	4.5	161	298	520	798	280
AC-FT	24490	2640	3470	286	237	246	4060	16560	19830	42000	69830	69330
†	-7,870	+9,260	+7,220	+11,370	+9,730	+9,960	+14,910	+7,320	+13,260	-25,600	-50,660	-52,570
MEAN‡	270	200	174	190	180	166	319	388	556	267	312	282
CFSM‡	1.44	1.07	.93	1.02	.96	.89	1.71	2.07	2.97	1.43	1.67	1.51
IN.‡	1.67	1.19	1.07	1.17	1.00	1.02	1.90	2.39	3.32	1.64	1.92	1.68
AC-FT‡	16,620	11,900	10,690	11,660	9,970	10,210	18,970	23,880	33,090	16,400	19,170	16,760

CAL YR 1976: TOTAL 232,523.00 MEAN 636 MAX 1,670 MIN 5.4 AC-FT 461,400
DO.....: MEAN‡ 589 CFSM‡ 3.15 IN‡ 42.90 AC-FT‡ 427,890
WTR YR 1977: TOTAL 127,543.80 MEAN 349 MAX 1,680 MIN .80 AC-FT 253,000
DO.....: MEAN‡ 275 CFSM‡ 1.47 IN† 19.98 AC-FT‡ 199,300

† Change in contents, in acre-feet, in Rimrock Lake.
‡ Adjusted for change in contents in Rimrock Lake.

12492500 TIETON RIVER AT HEADWORKS OF TIETON CANAL, NEAR NACHES, WA

LOCATION.--Lat 46°40'16", long 121°00'00", in NE¼SW¼ sec.30, T.14 N., R.15 E., Yakima County, Hydrologic Unit 17030002, Snoqualmie National Forest, on right bank 1,000 ft (300 m) downstream from headworks of Tieton Canal, 7.1 mi (11.4 km) downstream from Tieton Dam, 12.4 mi (20.0 km) upstream from Oak Creek, 16 mi (26 km) southwest of Naches, and at mile 14.2 (22.8 km).

DRAINAGE AREA.--239 mi² (619 km²).

PERIOD OF RECORD.--April 1906 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1910(M), 1920.

GAGE.--Water-stage recorder. Datum of gage is 2,280.44 ft (695.078 m) above mean sea level, unadjusted. Prior to July 28, 1909, nonrecording gages at same site or sites within 1.5 mi (2.4 km) downstream at same datum.

REMARKS.--Records good. Diversion for irrigation by Tieton Canal 1,000 ft (300 m) upstream. Flow regulated by Rimrock Lake 7.1 mi (11.4 km) upstream beginning April 1925.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation; 2 discharge measurements made and records reviewed by Geological Survey.

AVERAGE DISCHARGE.--71 years, 569 ft³/s (16.11 m³/s) 412,200 acre-ft/yr (508 hm³/yr), adjusted for diversion since 1910 and for storage since October 1924.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,910 ft³/s (252 m³/s) Dec. 22, 1933, gage height, 9.70 ft (2.957 m); no flow at times in 1926, 1929, 1931-32, 1934, 1945.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,270 ft³/s (36.0 m³/s) Sept. 21, 22, 23, gage height, 4.27 ft (1.301 m); minimum, 3.0 ft³/s (0.085 m³/s) Dec. 24, gage height, 1.56 ft (0.475 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	948	53	36	11	13	10	14	23	28	199	486	552
2	948	50	36	12	13	8.8	14	28	28	199	540	584
3	939	50	36	15	12	9.3	16	18	27	206	570	577
4	858	50	36	15	11	8.8	56	16	28	206	667	577
5	745	50	36	15	11	9.3	72	13	28	202	717	516
6	738	48	36	15	10	11	61	12	28	202	717	474
7	745	48	36	15	10	12	50	20	28	210	717	510
8	745	48	68	15	10	13	36	24	27	292	557	650
9	745	48	98	15	11	12	13	23	27	305	509	745
10	745	48	58	15	16	11	12	22	28	310	689	745
11	738	48	58	15	22	10	12	21	28	310	811	745
12	683	48	58	15	23	10	12	21	29	310	882	745
13	592	48	58	15	30	9.3	12	22	29	310	874	806
14	540	48	58	15	18	10	12	22	29	314	874	836
15	204	48	58	15	16	9.3	12	21	29	438	866	829
16	105	48	58	15	16	9.3	12	21	29	534	948	863
17	105	45	58	17	16	8.8	12	21	30	540	914	914
18	105	45	58	42	14	8.8	13	21	30	511	930	914
19	79	44	58	16	10	9.3	12	21	30	400	1070	1010
20	48	45	58	16	9.3	8.8	12	22	29	395	1220	1150
21	48	45	58	16	9.3	9.3	12	22	30	395	1210	1210
22	48	45	44	16	10	11	13	23	30	395	1150	1260
23	48	45	7.7	16	8.8	13	30	33	30	395	1120	1220
24	48	45	6.1	15	12	12	29	23	33	447	1040	1180
25	51	45	8.8	15	8.8	11	24	48	35	492	939	1060
26	50	43	12	15	8.2	12	24	24	42	498	769	890
27	50	50	13	15	8.8	16	24	27	112	492	689	766
28	48	45	9.0	15	12	12	27	27	140	492	653	710
29	48	40	11	15	---	9.3	29	27	146	492	540	724
30	48	42	8.2	15	---	12	23	27	177	486	584	283
31	51	---	4.0	12	---	14	---	27	---	486	522	---
TOTAL	11933	1405	1237.8	489	369.2	330.4	700	720	1344	11463	24774	24025
MEAN	385	46.8	39.9	15.8	13.2	10.7	23.3	23.2	44.8	370	799	801
MAX	948	53	98	42	30	16	72	48	177	540	1220	1260
MIN	48	40	4.0	11	8.2	8.8	12	12	27	199	486	283
AC-FT	23670	2790	2460	970	732	655	1390	1430	2670	22740	49140	47650
†	-7,870	+9,260	-7,220	+11,370	+9,730	+9,960	+14,910	+7,320	+13,260	-25,600	-50,660	-52,570
††	73	200	1,080	0	0	0	4,190	16,260	17,600	20,580	20,960	16,900
MEAN‡	258	206	175	201	188	173	344	407	563	288	316	201
CFSM‡	1.08	.86	.73	.84	.79	.72	1.44	1.70	2.36	1.21	1.32	.84
IN.‡	1.25	.96	.84	.97	.82	.84	1.61	1.96	2.64	1.39	1.52	.94
AC-FT‡	15,870	12,250	10,760	12,340	10,460	10,620	20,490	25,010	33,530	17,720	19,400	11,980

CAL YR 1976: TOTAL 202,843.8 MEAN 554 MAX 1,360 MIN 4.0 AC-FT 402,300
DO.....: MEAN‡ 648 CFSM‡ 2.71 IN‡ 36.86 AC-FT‡ 469,600
WTR YR 1977: TOTAL 78,790.4 MEAN 216 MAX 1,260 MIN 4.0 AC-FT 156,300
DO.....: MEAN‡ 277 CFSM‡ 1.16 IN‡ 15.74 AC-FT‡ 200,500

† Change in contents, in acre-feet, in Rimrock Lake.
†† Diversion, in acre-feet, by Tieton Canal.
‡ Adjusted for change in lake contents and diversion.

12494000 NACHES RIVER BELOW TIETON RIVER, NEAR NACHES, WA

LOCATION.--Lat 46°44'48", long 120°46'05", in SW¼NE¼ sec.36, T.15 N., R.16 E., Yakima County, Hydrologic Unit 17030002, on left bank 0.4 mi (0.6 km) downstream from Wapato power canal intake, 0.9 mi (1.4 km) downstream from Tieton River, 3.3 mi (5.3 km) northwest of Naches, and at mile 16.6 (26.7 km).

DRAINAGE AREA.--941 mi² (2,437 km²).

PERIOD OF RECORD.--August to October 1905, October 1908 to current year. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1910(M), 1911, 1929-30(M), 1932-33(M), 1935(M). WSP 1396: 1954.

GAGE.--Water-stage recorder. Datum of gage is 1,549.07 ft (472.157 m) above mean sea level. Prior to Dec. 7, 1916, nonrecording gage and Dec. 7, 1916, to Sept. 9, 1936, water-stage recorder, at site 0.6 mi (1.0 km) upstream at different datums. Sept. 10 to Oct. 30, 1936, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow regulated by Bumping Lake since November 1910 and Rimrock Lake since October 1924. Diversions by Selah Valley and Tieton Canals since 1909, Wapato Canal since 1936, and municipal water supply for the city of Yakima from the Oak Flat diversion canal until 1975. Small unmeasured diversions for irrigation of approximately 420 acres (1.7 km²) above station.

COOPERATION.--Gage-height record collected in cooperation with, and five discharge measurement furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--69 years (water years 1909-77), 1,742 ft³/s (49.33 m³/s), 1,262,000 acre-ft/yr (1,560 hm³/yr) adjusted for diversions by Naches-Selah, Tieton, and Wapato Canals, and for change in contents in Bumping and Rimrock Lakes.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,200 ft³/s (912 m³/s) Dec. 22, 23, 1933, gage height, 14.33 ft (4.368 m), site and datum then in use; minimum, 1 ft³/s (0.03 m³/s) Nov. 7, 1942, and for many days during winter of 1943-44, result of regulation and diversion.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,550 ft³/s (43.9 m³/s) June 8, gage height, 12.76 ft (3.889 m); minimum, 2.5 ft³/s (0.071 m³/s) Mar. 29, result of regulation and diversion.

MONTHLY DISCHARGE OF NACHES RIVER AND CANALS NEAR NACHES, WASH.
WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Month	Runoff or Diversion in acre-feet				Change in contents in Bumping and Rimrock Lakes (acre-feet)	Combined flow of Naches River and canals (acre-feet) (unadjusted)
	Naches River near Naches	Selah Valley Canal	Tieton Canal	Wapato Canal		
October	28,420	4,040	73	10,100	-12,060	30,570
November	17,860	0	200	2,960	+8,310	29,330
December	16,730	540	1,080	489	+7,070	25,910
CAL YR 1976	1,155,000	46,350	100,800	163,000	-42,820	1,422,000
January	15,770	0	0	351	+11,170	27,290
February	11,240	0	0	0	+14,060	25,300
March	8,430	3,200	0	391	+14,270	26,290
April	17,730	6,520	4,190	14,600	+28,090	71,130
May	23,730	7,460	16,260	19,610	+15,600	82,660
June	35,570	7,380	17,600	18,040	+12,470	91,060
July	9,420	7,950	20,580	20,250	-28,560	29,640
August	34,880	8,080	20,960	26,260	-63,700	26,480
September	41,630	6,200	16,900	22,150	-60,530	26,350
WTR YR 1977	261,400	51,370	97,840	135,200	-53,810	492,000

Note.--Previous years included City of Yakima diversion at Oak Flat. This diversion was discontinued during the 1975 water year.

12494Ø NACHES RIVER BELOW TIETON RIVER, NEAR NACHES, WA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	810	362	282	200	260	234	88	775	868	105	198	470
2	810	362	282	200	270	216	90	757	756	118	212	505
3	803	326	270	200	260	211	88	769	850	116	231	505
4	736	362	260	200	220	185	113	631	810	113	282	522
5	632	338	250	170	180	175	148	503	1130	111	446	548
6	632	326	250	135	170	173	136	415	1270	109	510	472
7	632	314	290	130	160	177	185	370	1420	106	485	460
8	630	310	310	130	150	210	490	362	1450	118	358	557
9	632	302	354	125	150	205	376	326	1090	129	212	633
10	626	298	302	120	157	180	258	356	876	123	402	627
11	626	290	290	115	205	160	189	384	789	118	470	619
12	604	286	294	115	209	157	151	298	716	118	570	614
13	510	282	302	125	257	157	143	286	692	116	560	646
14	495	274	298	150	233	143	129	290	668	111	560	678
15	426	270	294	180	208	143	113	326	609	137	543	671
16	296	270	298	240	198	136	113	318	548	198	507	671
17	286	290	298	270	197	126	104	258	500	198	676	735
18	310	326	302	330	201	111	97	266	480	195	668	760
19	310	318	294	600	201	106	97	236	446	168	775	700
20	310	314	258	560	196	106	88	232	415	160	956	931
21	296	306	245	521	195	92	86	270	318	137	962	1020
22	250	302	220	451	195	88	93	307	232	136	930	1100
23	240	294	235	406	186	95	165	441	209	151	882	1080
24	232	290	218	350	171	101	322	415	189	173	876	1020
25	282	290	232	330	199	95	820	379	176	212	788	963
26	326	282	282	300	210	90	1090	358	166	229	706	819
27	330	263	310	280	206	116	869	358	164	210	620	724
28	322	258	250	270	229	118	742	322	176	218	604	661
29	314	286	235	250	---	65	789	298	167	212	490	672
30	306	286	230	250	---	32	783	278	160	208	538	528
31	310	---	200	250	---	67	---	302	---	202	495	---
TOTAL	14320	9005	8435	7953	5669	4248	8939	11962	17936	4751	17505	20989
MEAN	462	300	272	257	202	137	298	386	598	153	567	700
MAX	810	362	354	600	270	234	1090	775	1450	229	962	1100
MIN	232	263	200	115	150	32	86	232	160	106	198	460
AC-FT	28420	17860	16730	15770	11240	8430	17730	23730	35570	9420	34880	41630
*	-12,060	+8,310	+7,070	+11,170	+14,060	+14,270	+28,090	+15,600	+12,470	-28,560	-63,700	-60,550
**	14,210	3,160	2,110	351	0	3,590	25,310	43,530	43,020	48,780	55,300	45,250
MEAN‡	497	493	421	444	466	428	1,195	1,348	1,530	482	451	443
CFSM‡	0.53	0.52	0.45	0.47	0.50	0.45	1.27	1.43	1.63	0.51	0.46	0.47
IN.‡	0.61	0.58	0.52	0.54	0.52	0.52	1.42	1.65	1.81	0.59	0.53	0.53
AC-FT‡	30,570	29,330	25,910	27,290	25,900	26,290	71,150	82,860	91,060	29,640	26,480	26,350

CAL YR 1976: TOTAL 582,538 MEAN 1,592 MAX 6,160 MIN 200 AC-FT 1,155,000
DO.....: MEAN‡ 1,959 CFSM‡ 2.08 IN‡ 28.33 AC-FT‡ 1,422,000
WTR YR 1977: TOTAL 131,798 MEAN 361 MAX 1,450 MIN 32 AC-FT 261,400
DO.....: MEAN‡ 681 CFSM‡ 0.72 IN‡ 9.82 AC-FT‡ 492,800

* Change in contents, in acre-feet, Bumping and Rimrock Lakes.
** Diversion, in acre-feet, by Tieton, Selah Valley, and Wapatox Canals.
‡ Adjusted for change in lake contents and diversion.

12500010 YAKIMA RIVER NEAR TERRACE HEIGHTS, WA

LOCATION.--Lat 46°36'21", long 120°28'27", in NW¼NE¼ sec.20, T.13 N., R.19 E., Yakima County, Hydrologic Unit 17030003, at Terrace Heights Way bridge, 1.6 mi (2.6 km) west of Terrace Heights, and at mile 113.2 (182.1 km).

DRAINAGE AREA.--3,250 mi² (8,420 km²).

PERIOD OF RECORD.--Water years 1971-72, 1974-75, Sept. 27 to Sept. 28, 1977 (discontinued).

REMARKS.--Temperature, dissolved oxygen, pH, turbidity, specific conductance and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM, 7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
27...	0800	2680	124	7.5	12.5	5	9.5	89	B640	B52	43
27...	1100	2660	121	7.9	13.2	--	10.7	101	--	--	--
27...	1405	2640	122	8.6	13.9	3	11.6	110	B600	B20	--
27...	1715	2600	116	8.3	14.1	--	--	--	--	--	--
27...	2100	2630	120	8.0	13.7	3	--	--	2700	80	--
27...	2315	2610	121	7.8	13.6	--	--	--	--	--	--
28...	0200	2610	121	7.6	13.2	6	--	--	B910	B66	--
28...	0500	2600	123	7.7	12.9	--	--	--	--	--	--
28...	0800	2580	124	--	12.9	--	--	--	B736	B52	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
27...	0	11	3.8	5.3	1.5	59	0	48	3.0	5.9
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
SEP										
27...	2.6	.1	19	78	12	.08	.04	.18	.05	.03
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	8	.05	.05	.15	.05	.03
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--

12500420 MOXEE DRAIN AT BIRCHFIELD ROAD NEAR UNION GAP, WA

LOCATION.--Lat 46°32'46", long 120°26'13", in SE¼NW¼ sec.10, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, 2 mi (3.2 km) southeast of Yakima at Birchfield crossing.

PERIOD OF RECORD. May 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MAY 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
MAY , 1975							
24...	1210	54	350	16.0	50	1540	225
31...	1235	52	410	18.0	50	801	112
JUN							
01...	1820	54	400	20.0	40	558	81
04...	1415	44	440	19.0	30	440	52
09...	1330	58	380	16.0	30	478	75
11...	1605	51	440	18.0	40	675	93
18...	1240	85	315	16.0	40	747	171
20...	1345	75	360	18.0	30	476	96
24...	1415	77	350	18.0	40	520	108
26...	1410	77	335	16.0	30	668	139
JUL							
01...	1410	59	420	17.0	30	646	103
03...	1415	73	380	19.0	40	636	125
08...	1245	61	460	20.0	40	1730	285
11...	1245	54	400	19.0	40	872	127
15...	1445	61	400	19.0	50	670	110
17...	1305	53	400	19.6	45	632	90
21...	1420	65	420	21.3	35	618	108
25...	1230	57	400	22.6	40	659	101
29...	1045	69	350	17.1	35	411	77
AUG							
01...	1100	63	360	17.0	20	295	50
05...	1100	62	370	18.4	35	376	63
13...	1230	74	370	17.7	11	307	61
18...	1640	54	365	18.7	30	951	139
21...	1500	108	350	20.2	5	362	106
28...	1150	115	350	16.4	6	261	81
SEP							
04...	1500	74	350	18.0	3	197	39
11...	1325	114	310	18.4	2	199	61
18...	1805	115	--	16.5	3	149	46
25...	1300	102	330	15.5	4	205	56
OCT							
28...	1530	26	700	12.1	1	52	3.7
MAR , 1976							
03...	0850	9.0	880	2.8	3	12	.29
10...	1040	9.0	820	8.2	1	45	1.1
17...	0905	12	650	7.4	9	29	.94
23...	0850	13	510	5.5	27	78	2.7

12500420 MOXEE DRAIN AT BIRCHFIELD ROAD NEAR UNION GAP, WA--Continued

WATER QUALITY DATA, MAY 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
MAR., 1976							
25...	1535	12	550	10.2	17	41	1.3
31...	1915	37	290	8.0	16	1200	120
APR							
01...	1600	63	205	9.0	12	484	81
05...	1535	34	265	15.0	2	493	45
09...	1915	61	268	7.0	10	76	12
13...	0845	58	265	8.0	15	330	51
15...	1605	53	250	9.7	8	266	38
20...	1550	73	260	13.0	8	457	90
23...	0845	75	232	7.2	5	280	57
26...	1650	60	265	12.0	5	260	44
29...	1540	50	210	15.0	7	263	35
MAY							
04...	0830	43	330	9.0	8	221	26
06...	1645	50	205	17.2	10	386	52
11...	0815	76	267	9.1	9	468	96
13...	1605	56	270	18.1	16	462	70
17...	1500	50	263	16.0	11	366	50
20...	1615	36	300	17.2	15	485	47
24...	1500	77	250	14.2	12	643	134
27...	1645	76	205	13.0	9	542	111
JUN							
01...	1700	76	277	15.1	17	663	136
03...	1515	76	325	16.9	16	541	111
07...	1630	62	335	16.5	12	462	77
11...	0845	75	310	12.3	26	1320	267
15...	0800	74	315	13.0	18	577	115
17...	1645	73	327	20.0	21	807	159
21...	1515	73	300	18.3	20	875	172
25...	0845	78	277	12.0	18	756	159
28...	2015	73	276	21.0	20	719	142
JUL							
01...	1630	115	295	19.3	20	758	235
06...	2030	75	330	20.8	22	654	132
09...	0815	81	260	16.1	18	669	146
13...	1225	78	297	17.0	19	567	120
16...	1730	73	330	15.0	16	759	150
20...	0830	73	285	16.5	119	962	190
22...	1905	73	280	21.8	96	981	193
27...	0845	78	307	14.8	108	733	154
29...	1645	76	335	21.0	37	726	149
AUG							
02...	1545	77	291	18.0	27	496	103
05...	1600	13	305	21.0	30	483	17
09...	1620	18	315	20.7	10	401	19
12...	1700	24	295	18.7	23	413	27
19...	1600	19	320	16.3	20	413	21
23...	1630	17	323	20.1	19	282	13
26...	1615	23	293	17.0	13	985	61
30...	1915	14	305	20.3	18	288	11
SEP							
02...	1845	13	320	19.5	13	343	12
07...	1930	78	265	16.1	14	298	63
09...	1745	80	280	17.2	13	266	57
16...	1145	77	255	14.1	11	196	41
17...	1330	80	275	16.0	9	246	53
20...	1930	77	280	--	11	336	69
23...	1645	76	295	17.7	13	279	57
28...	0930	76	315	16.3	14	235	48

12500445 WIDE HOLLOW CREEK NEAR MOUTH, AT UNION GAP, WA

LOCATION.--Lat 46°32'19", long 120°28'17", in SE¼NE¼ sec.8, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, at private road to Union Gap sewerage plant.

DRAINAGE AREA.--64.8 mi² (167.8 km²)

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR., 1975							
12...	1450	48	740	8.5	2	27	3.5
14...	0935	38	660	7.0	4	22	2.3
19...	0930	35	586	7.0	2	14	1.3
21...	1040	32	608	7.0	8	14	1.2
25...	1100	33	550	6.0	5	15	1.3
27...	1040	43	620	6.5	5	18	2.1
31...	1020	46	580	7.0	2	16	2.0
APR							
03...	1035	65	606	--	2	37	6.5
07...	1102	74	385	7.0	2	28	5.6
09...	1140	73	380	6.0	1	35	6.9
14...	1140	63	330	6.5	2	22	3.7
18...	1150	64	390	11.0	--	16	2.8
22...	1145	60	605	10.0	4	25	4.0
24...	1145	52	385	10.0	4	16	2.2
29...	1120	39	420	11.0	5	17	1.8
MAY							
02...	1205	63	350	11.0	5	25	4.2
06...	1135	61	375	12.0	20	22	3.6
10...	1235	70	310	16.0	--	43	8.1
15...	1035	93	415	14.0	3	33	8.3
19...	1420	88	300	14.0	10	56	13
24...	1105	80	320	13.0	8	38	8.2
31...	1120	37	280	17.0	4	37	3.7
JUN							
01...	1450	40	280	17.0	8	37	4.0
06...	1535	38	425	18.0	15	76	7.8
09...	1505	50	370	19.0	6	66	8.9
11...	1445	40	480	17.0	6	51	5.5
16...	1405	44	430	19.0	6	72	8.6
20...	1500	44	420	18.0	5	25	3.0
24...	1515	43	480	16.0	8	23	2.7
26...	1515	38	440	16.0	4	20	2.2
JUL							
01...	1515	40	510	16.0	5	25	2.7
03...	1515	40	560	17.0	4	14	1.5
08...	1200	33	780	18.0	4	18	1.6
11...	1205	36	600	17.0	6	113	11
15...	1545	36	660	17.0	7	21	2.0
17...	1405	32	620	17.0	9	6	.52

12500445 WIDE HOLLOW CREEK NEAR MOUTH, AT UNION GAP, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUL., 1975							
01...	0935	82	420	20.4	2	9	.40
25...	1105	87	420	19.0	10	6	.44
29...	1105	31	390	18.4	3	22	1.8
AUG							
01...	1230	31	360	17.2	2	7	.59
05...	1200	31	360	18.0	4	5	.42
13...	1135	50	420	19.2	1	13	1.9
19...	1010	70	360	17.8	9	62	12
21...	1015	80	410	19.5	4	26	4.2
27...	1555	80	700	17.4	10	18	3.2
SEP							
04...	1505	75	680	16.7	3	--	--
11...	1130	75	550	16.2	5	16	2.8
19...	1030	62	420	13.5	7	16	2.7
25...	1325	62	600	16.5	15	25	4.2
OCT							
20...	1700	37	525	13.5	--	7	.70
MAR., 1976							
03...	1555	18	750	8.2	11	11	.53
09...	1615	14	1000	11.6	22	7	.18
17...	1000	15	1900	10.0	27	22	.88
23...	0945	16	1100	7.7	16	21	.91
25...	1635	15	1000	11.1	26	21	.85
31...	0930	44	350	9.9	31	187	22
APR							
01...	1530	37	26	10.6	26	48	4.8
05...	1600	27	1500	10.5	22	25	1.8
09...	0935	38	420	8.6	9	34	3.5
13...	0935	37	600	10.0	0	30	3.4
15...	1630	46	720	9.6	0	34	3.9
20...	1615	41	650	12.1	7	43	5.0
23...	0945	26	800	10.0	8	35	2.1
26...	1720	41	625	10.6	6	32	3.5
29...	1605	37	1200	10.5	14	35	3.5
MAY							
04...	0915	30	695	11.6	4	31	3.2
06...	1500	41	900	13.7	10	44	4.9
11...	0930	52	632	10.7	11	16	2.2
13...	1530	44	300	16.0	9	31	3.7
20...	1230	44	295	13.5	3	36	4.0
26...	1015	48	280	13.0	3	31	4.0
27...	1605	43	320	12.2	2	19	2.2
JUN							
01...	1615	60	280	13.0	2	24	3.8
03...	1430	64	285	13.0	2	16	2.1
07...	1300	60	260	15.0	2	17	1.4
11...	0930	62	240	13.3	2	19	2.2
15...	0845	60	300	13.8	1	13	1.2
17...	1400	38	255	17.0	1	9	.92
21...	1600	37	900	16.4	0	18	1.8
25...	1030	37	330	13.1	1	24	2.4
28...	2100	50	300	17.7	1	19	1.5
JUL							
01...	1540	35	205	19.5	1	18	1.4
06...	2115	38	315	17.5	1	16	1.6
09...	0900	42	275	16.9	1	9	.57
13...	1205	42	350	16.4	1	4	.45
15...	1515	32	900	18.2	4	12	1.0
20...	0915	26	325	15.9	1	12	.91
22...	2030	60	300	17.4	1	28	2.0
27...	0930	30	305	15.0	3	6	.48
29...	1530	24	255	18.0	2	10	.70
AUG							
02...	1625	32	413	17.0	4	6	.52
05...	1515	20	950	17.9	9	7	.40
09...	1800	30	565	17.8	5	31	2.5
17...	1800	41	330	16.1	3	15	1.7
19...	1515	43	320	15.9	2	15	1.7
23...	1530	44	345	17.0	2	18	2.1
26...	1530	53	320	16.9	3	18	2.6
31...	0850	45	390	16.3	2	11	1.3
SEP							
02...	1800	38	285	17.5	2	7	.72
07...	2015	40	315	15.0	4	12	1.5
09...	1830	45	335	15.7	4	23	2.8
14...	1230	50	240	14.5	4	18	2.7
17...	1615	48	225	16.5	3	21	3.9
20...	1900	58	315	--	3	19	3.0
23...	1615	55	315	17.8	2	20	3.5
27...	1630	58	330	16.3	4	20	3.6

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA

LOCATION.--Lat 46°32'04", long 120°27'58", in NW¼NE¼ sec.17, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left bank 2,200 ft (670 m) upstream from Ahtanum Creek, 0.8 mi (1.3 km) upstream from Wapato Dam, 1.4 mi (2.3 km) southeast of Union Gap, and at about mile 107.5 (113.8 km).

DRAINAGE AREA.--3,479 mi² (9,011 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Apr. 4, 1967, at site 1,200 ft (370 m) downstream at same datum.

REMARKS.--Water-discharge records good. Diversions above station for irrigation of about 212,000 acres (860 km²). Flow partly regulated by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. Records at this site plus those for Ahtanum Creek at Union Gap are equivalent to 12503000, Yakima River at Union Gap.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,200 ft³/s (799 m³/s) Dec. 4, 1975, elevation, 948.34 ft (289.054 m); minimum, 565 ft³/s (16.0 m³/s) Mar. 27, 1977, elevation, 937.38 ft (285.713 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,920 ft³/s (111 m³/s) Aug. 17, elevation, 939.85 ft (286.466 m); minimum, 565 ft³/s (16.0 m³/s) Mar. 27, elevation, 937.38 ft (285.713 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2770	1270	959	1080	959	910	587	3150	3030	2980	2970	2920
2	2850	1280	959	1030	979	910	592	3120	3290	3050	2880	2820
3	2840	1280	949	989	979	890	597	2920	3100	3180	2820	2840
4	2850	1270	949	959	929	870	593	2880	2980	3250	2790	2850
5	2690	1270	969	969	890	841	617	2690	3360	3180	2820	2800
6	2550	1240	959	919	861	822	929	2540	3360	3130	2980	2680
7	2520	1210	959	840	832	784	1340	2520	3360	3030	3130	2490
8	2570	1180	969	820	803	774	1680	2550	3180	2950	3150	2390
9	2550	1160	989	860	784	803	2450	2460	2740	3020	3020	2400
10	2550	1140	1010	800	774	863	2250	2460	2280	3100	2800	2410
11	2540	1120	999	820	793	784	1770	2610	2360	3070	2750	2460
12	2540	1110	989	830	861	784	1390	2300	2580	2980	2900	2430
13	2360	1070	989	840	969	774	1490	2020	2740	3000	3000	2370
14	2120	1050	989	850	1140	756	1700	2090	2770	3130	3100	2390
15	2010	1040	979	870	1050	748	1630	2210	2680	2920	3050	2440
16	1680	1030	989	890	989	738	1510	2270	2630	3070	3000	2420
17	1560	989	999	900	929	738	1470	2160	2710	3200	3410	2400
18	1560	979	999	1160	900	813	1440	2140	2770	3250	3480	2410
19	1560	1020	1010	2600	890	783	1350	2280	2850	3150	3250	2330
20	1590	1060	999	2790	880	817	1300	2300	2790	2970	3020	2320
21	1740	1060	989	2310	920	735	1400	2300	2760	3080	3130	2330
22	1500	1060	989	1870	890	720	1400	2480	2820	2930	3340	2420
23	1460	1060	1010	1610	870	710	1420	2580	2870	2900	3180	2540
24	1410	1060	979	1440	784	649	1880	2720	2800	2870	3250	2690
25	1390	1060	949	1130	774	640	2690	2480	2850	2900	3320	2750
26	1370	1050	929	1120	784	601	3270	2430	2920	2950	3380	2750
27	1370	1040	959	1110	793	579	2740	2410	3020	3020	3180	2650
28	1520	1020	1090	1070	880	681	1850	2460	3030	3080	3120	2540
29	1370	989	1200	1030	---	666	2190	2450	3030	2980	3000	2410
30	1310	969	1210	989	---	612	2710	2360	3030	2970	2980	2390
31	1280	---	1160	959	---	586	---	2400	---	2980	3080	---
TOTAL	61980	33136	31076	36394	24886	23321	48235	76740	86690	94110	95200	76040
MEAN	1999	1105	1002	1174	889	752	1608	2475	2890	3036	3071	2535
MAX	2850	1280	1210	2790	1140	910	3270	3150	3360	3250	3480	2920
MIN	1280	969	929	800	774	579	587	2020	2280	2870	2750	2320
AC-FT	122900	65730	61640	72190	49360	46260	95670	152200	171900	186700	188800	150800

CAL YR 1976 TOTAL 1555292 MEAN 4249 MAX 12100 MIN 929 AC-FT 3085000
WTR YR 1977 TOTAL 687660 MEAN 1884 MAX 3480 MIN 579 AC-FT 1364000

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969, 1971, March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR . 1975							
14...	0900	3790	143	4.0	2	16	164
19...	0840	2900	120	3.5	3	11	86
21...	0945	2460	140	4.0	3	13	86
25...	1010	2640	150	4.0	2	10	71
27...	1010	2480	172	3.5	3	8	54
31...	0945	2800	142	5.0	4	32	242
APR							
03...	0950	2800	149	5.0	2	25	189
07...	1020	2560	170	6.0	2	25	173
09...	1105	2700	170	7.0	1	41	299
14...	1055	4390	140	6.5	6	69	818
18...	1100	4430	145	10.0	--	50	598
22...	1105	4610	115	9.0	5	27	336
24...	1100	4500	117	9.0	5	26	316
29...	1035	4380	130	9.0	7	31	367
MAY							
02...	1120	4380	135	10.0	6	42	497
06...	1045	4690	130	10.0	5	35	443
10...	1135	14700	110	14.0	--	182	7220
15...	1755	14500	95	15.0	20	239	9360
18...	1820	12600	93	11.0	10	115	3910
24...	1125	13300	100	10.0	20	106	3810
31...	1145	10700	100	15.0	10	76	2200
JUN							
01...	1850	12100	85	15.0	20	93	3040
04...	1445	10600	85	13.0	10	88	2520
09...	1400	8410	100	13.0	8	60	1360
11...	1515	8120	100	15.0	10	121	2650
18...	1300	7370	105	13.0	10	124	2470
20...	1410	7280	105	16.0	6	50	983
23...	1430	6490	120	16.0	10	103	1810
26...	1435	6200	105	14.0	8	69	1160
JUL							
01...	1430	4160	130	15.0	10	98	1100
03...	1430	5050	115	17.0	10	120	1640
08...	1305	4730	90	17.0	10	62	792
11...	1305	4290	100	12.0	6	126	1460
15...	1510	4770	110	18.0	8	62	798
17...	1325	3820	105	18.4	5	29	299
21...	1445	3980	140	21.4	5	48	516

12500450 YAKIMA RIVER ABOVE AHTANUM CREEK, AT UNION GAP, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
JUL , 1975							
25...	1305	3550	140	22.3	10	48	460
29...	1115	3420	130	17.2	8	46	425
AUG							
01...	1145	3550	120	17.4	5	20	192
05...	1130	3560	100	18.8	8	23	221
13...	1255	3210	102	18.0	1	--	--
18...	1620	4590	100	17.0	2	33	409
21...	1540	4080	110	20.8	1	15	165
SEP							
04...	1425	3150	120	17.0	1	12	102
11...	1300	2350	120	17.4	1	15	95
18...	1745	2720	120	16.0	1	12	88
25...	1230	2580	130	15.4	1	12	84
OCT							
20...	1600	1730	158	11.2	1	11	51
MAR , 1976							
03...	0920	2290	131	.8	3	5	31
10...	1100	2920	132	6.0	7	28	221
17...	0930	2520	128	6.0	6	11	75
23...	0915	3000	118	4.3	6	10	81
25...	1605	2980	128	7.0	7	12	97
31...	0845	4400	101	7.6	18	73	867
APR							
01...	1545	4480	125	6.5	5	30	363
05...	1550	4760	94	10.4	4	36	463
09...	0850	9470	79	6.6	16	182	4650
13...	1010	9720	95	7.2	9	46	1210
15...	1740	8360	100	6.8	5	35	790
20...	1640	6690	99	9.7	3	37	668
23...	0915	6200	110	6.8	3	29	485
27...	0805	5400	96	7.7	3	18	262
29...	1600	5040	104	11.1	3	14	191
MAY							
04...	0845	9420	92	8.6	8	71	1810
06...	1530	7840	70	11.6	4	30	635
11...	0900	12500	77	7.7	11	99	3340
13...	1600	9640	84	11.8	6	43	1120
20...	1400	7330	82	10.8	3	13	257
24...	1445	8820	75	11.3	3	29	691
27...	1515	8030	77	11.4	3	29	629
JUN , 1976							
01...	1645	6720	82	11.1	2	18	327
03...	1500	4580	74	12.4	2	23	284
07...	1415	3720	94	14.9	1	15	151
11...	0900	4800	76	11.7	3	30	389
15...	0815	3720	104	13.2	2	20	201
17...	1430	5240	87	16.2	2	32	453
21...	1440	6470	79	14.2	3	40	699
25...	0915	6320	82	12.1	3	33	563
28...	2030	5800	89	18.0	3	31	485
JUL							
01...	1615	6060	74	14.7	2	30	491
06...	2045	5580	82	18.1	2	21	316
09...	0830	7820	67	14.9	3	78	1650
13...	1245	5970	73	16.6	1	22	355
16...	0825	4020	80	16.3	2	13	141
20...	0845	3740	65	16.6	5	35	353
22...	2000	3920	82	19.5	5	29	307
27...	0900	3680	97	14.6	5	24	238
29...	1600	3630	97	18.2	4	17	167
AUG							
02...	1600	4140	97	16.3	2	15	168
05...	1545	4000	97	18.0	2	17	184
09...	1740	4340	97	18.5	2	13	152
17...	1730	4320	107	16.8	3	22	257
19...	1545	3680	105	15.3	3	17	169
23...	1600	3320	104	18.5	2	15	134
26...	1600	3700	102	16.3	2	16	160
30...	1930	3550	102	19.0	2	18	173
SEP							
02...	1830	3120	102	18.3	2	16	135
07...	1945	3500	92	15.6	2	19	180
09...	1800	3320	93	16.0	2	15	134
14...	1200	3030	112	14.0	3	13	106
17...	1345	3120	110	15.9	2	13	93
20...	1915	3080	92	--	2	11	93
23...	1630	2850	113	17.1	2	14	116
27...	1600	2790	115	16.7	2	11	85

12500500 NORTH FORK AHTANUM CREEK NEAR TAMPICO, WA

LOCATION.--Lat 46°33'52", long 120°54'57", in SW¼SE¼ sec.35, T.13 N., R.15 E., Yakima County, Hydrologic Unit 17030003, on left bank 150 ft (46 m) downstream from Nasty Creek, 3.2 mi (5.1 km) northwest of Tampico, 20 mi (32.2 km) west of Yakima, and at mile 5.3 (8.5 km).

DRAINAGE AREA.--68.9 mi² (178.5 km²).

PERIOD OF RECORD.--August 1907 to current year (no winter records in water years 1908-09, 1916-30). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1286: 1910(M), 1914-15.

GAGE.--Water-stage recorder. Concrete control Nov. 11, 1915, to December 1933, and broad-crested weir since September 1934. Altitude of gage is 2,450 ft (747 m), from topographic map. Aug. 26, 1907, to Apr. 1, 1913, Aug. 20, 1915, to Sept. 5, 1916, nonrecording gage, and Apr. 2, 1913, to Aug. 19, 1915. Sept. 6, 1916, to Sept. 19, 1934, water-stage recorder at site 50 ft (15 m) upstream at different datum.

REMARKS.--Records good except those for winter periods which are fair. Minor diversions. No regulation.

AVERAGE DISCHARGE.--53 years (water years 1910-15, 1931-77), 69.9 ft³/s (1.980 m³/s), 13.78 in/yr (350 mm/yr), 50,640 acre-ft/yr (62.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,580 ft³/s (44.7 m³/s) Jan. 15, 1974, gage height, 5.45 ft (1.661 m) from rating curve extended above 690 ft³/s (19.5 m³/s) on basis of slope-area measurement of peak flow; minimum, 3.1 ft³/s (0.0.88 m³/s) Nov. 27, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 5	1000	(a)	----	2.17	0.661	Apr. 25	2400	*61	1.73	1.42	0.433

Minimum discharge, 3.1 ft³/s (0.088 m³/s) Nov. 27.

a Backwater from ice.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	27	16	9.0	11	16	16	39	37	11	7.8	9.9
2	24	24	18	12	13	16	16	43	31	11	7.8	9.6
3	24	24	21	10	11	16	17	36	29	12	7.6	9.3
4	24	23	20	8.0	10	16	21	31	39	12	7.6	11
5	25	23	17	7.0	11	15	24	28	40	12	12	11
6	24	22	19	6.5	12	16	27	27	44	12	9.6	9.9
7	24	22	23	6.5	13	17	31	28	42	11	9.0	9.3
8	24	23	22	6.5	14	18	37	28	36	11	9.0	9.0
9	23	23	21	6.0	15	16	30	26	30	10	7.8	9.0
10	23	22	20	6.0	17	16	26	30	27	10	7.6	9.0
11	23	22	19	6.5	19	16	23	28	26	11	7.6	8.7
12	23	21	19	6.5	21	16	23	26	24	10	7.3	8.7
13	22	20	19	7.5	22	15	24	26	25	10	7.3	8.4
14	22	21	19	8.5	19	15	22	26	26	9.6	7.1	8.4
15	23	22	20	10	19	15	23	25	22	9.3	7.1	8.4
16	23	23	20	11	19	15	25	24	20	9.0	7.1	8.7
17	22	22	20	14	19	15	21	23	19	9.0	7.1	9.3
18	22	22	19	17	19	15	21	23	18	9.3	6.8	10
19	22	21	14	19	18	15	20	24	18	9.0	6.8	12
20	23	21	8.5	20	18	15	20	26	17	8.7	6.8	11
21	23	20	17	17	19	15	19	30	16	8.7	7.3	12
22	23	20	19	15	18	16	22	31	16	8.4	7.1	11
23	23	20	16	14	16	17	29	30	15	8.1	7.1	11
24	23	21	12	13	16	16	37	27	14	8.1	8.4	12
25	26	21	17	13	16	15	50	25	14	8.1	8.7	14
26	24	12	21	12	16	16	46	27	13	14	9.3	13
27	23	5.4	20	12	16	16	35	26	13	9.6	8.7	13
28	23	10	15	11	18	15	35	24	13	9.3	9.0	14
29	23	16	17	10	---	15	38	23	12	9.0	9.3	13
30	23	16	13	10	---	15	38	23	12	8.4	18	12
31	26	---	5.5	10	---	16	---	28	---	8.4	11	---
TOTAL	725	609.4	547.0	334.5	455	487	816	861	708	307.0	260.7	315.6
MEAN	23.4	20.3	17.6	10.8	16.3	15.7	27.2	27.8	23.6	9.90	8.41	10.5
MAX	26	27	23	20	22	18	50	43	44	14	18	14
MIN	22	5.4	5.5	6.0	10	15	16	23	12	8.1	6.8	8.4
CFSM	.34	.30	.26	.16	.24	.23	.40	.40	.34	.14	.12	.15
IN.	.39	.33	.30	.18	.25	.26	.44	.46	.38	.17	.14	.17
AC-FT	1440	1210	1080	663	902	966	1620	1710	1400	609	517	626

CAL YR 1976 TOTAL 26551.4 MEAN 72.5 MAX 324 MIN 5.4 CFSM 1.05 IN 14.34 AC-FT 52660
WTR YR 1977 TOTAL 6426.2 MEAN 17.6 MAX 50 MIN 5.4 CFSM .26 IN 3.47 AC-FT 12750

1250100 SOUTH FORK AHTANUM CREEK AT CONRAD RANCH, NEAR TAMPICO, WA

LOCATION.--Lat 46°30'40", long 120°54'55", in SE¼ sec.23, T.12 N., R.15 E., Yakima County, Hydrologic Unit 17030003, on left bank at Conrad Ranch, 2.7 mi (4.3 km) southwest of Tampico, 20.3 mi (32.7 km) southwest of Yakima, and at mile 4.0 (6.4 km).

DRAINAGE AREA.--24.8 mi² (64.2 km²).

PERIOD OF RECORD.--March 1915 to current year (no winter records prior to water year 1931). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 312: 1910. WSP 902: 1939. WSP 1264: Drainage area. WSP 1316: 1945(M). WSP 1446: 1918(M).

GAGE.--Water-stage recorder. Concrete control Sept. 6, 1916, to December 1933, and since Nov. 28, 1962. Altitude of gage is 2,400 ft (732 m), from topographic map. Prior to Aug. 9, 1918, nonrecording gage at datum 1.00 ft (0.305 m) lower and Aug. 9, 1918, to Mar. 22, 1951, nonrecording gage at present datum.

REMARKS.--Records good. Diversion for irrigation of about 55 acres (0.22 km²) above station. No regulation.

AVERAGE DISCHARGE.--47 years (water years 1931-77), 19.9 ft³/s (0.564 m³/s), 14,420 acre-ft/yr (17.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,230 ft³/s (34.8 m³/s) Jan. 15, 1974, gage height, 5.39 ft (1.643 m), from rating curve extended above 140 ft³/s (3.96 m³/s) on basis of slope-area measurement of peak flow; minimum, 2.4 ft³/s (0.068 m³/s) Dec. 16, 1964, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 25	1400	(a)	-----	*2.52	0.768	Apr. 26	0100	*15	0.425	1.94	0.591

Minimum daily discharge, 3.1 ft³/s (0.088 m³/s) Sept. 12-15.

a Result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.3	9.9	8.5	5.5	6.5	6.9	5.9	10	8.1	3.6	3.5	4.0
2	9.3	9.3	8.5	6.5	6.9	5.9	5.9	11	7.4	3.6	3.5	4.0
3	9.3	8.7	7.5	6.5	6.4	5.9	6.0	10	7.3	3.6	3.5	4.0
4	9.3	8.7	6.8	6.0	6.4	5.9	6.9	8.1	8.1	3.7	3.5	4.2
5	9.3	9.3	6.5	6.0	6.4	5.9	7.7	7.4	7.6	3.7	3.6	4.1
6	9.3	9.1	7.8	5.8	6.4	5.9	8.4	7.2	7.2	3.7	3.6	3.9
7	9.3	9.3	8.7	5.8	6.4	6.9	9.3	8.3	6.9	3.6	3.6	3.7
8	9.3	9.3	8.7	5.7	6.4	6.9	11	7.8	6.6	3.6	3.5	3.6
9	8.7	9.3	8.0	5.7	6.4	6.4	8.8	7.1	6.3	3.6	3.4	3.5
10	8.7	9.3	8.0	5.5	8.0	6.4	7.2	9.4	6.2	3.6	3.4	3.3
11	8.7	9.2	8.0	6.0	7.4	5.9	6.8	8.5	6.1	3.3	3.4	3.2
12	8.7	9.3	8.0	6.0	8.0	5.9	6.8	7.2	5.9	3.3	3.3	3.1
13	8.7	9.0	8.0	6.5	8.0	5.9	7.1	7.1	6.2	3.3	3.3	3.1
14	8.7	9.7	7.4	7.0	6.9	6.4	6.6	6.8	6.4	3.3	3.2	3.1
15	8.7	9.9	7.4	8.0	6.9	5.9	6.5	6.9	5.7	3.4	3.3	3.1
16	8.7	11	8.0	7.4	6.9	5.9	7.2	6.6	5.1	3.3	3.3	3.2
17	8.7	11	8.0	8.7	6.9	5.9	6.5	6.4	4.9	3.3	3.3	3.3
18	8.7	10	8.0	11	6.9	5.9	6.2	6.5	4.6	3.7	3.2	3.5
19	8.7	9.9	8.0	8.7	6.9	5.9	5.9	6.2	4.7	3.6	3.2	3.9
20	8.7	9.9	6.5	7.4	6.9	5.4	5.9	6.5	4.4	3.5	3.3	3.2
21	8.7	9.6	7.0	6.9	6.9	5.4	5.9	7.0	4.1	3.5	3.5	3.3
22	8.7	9.5	7.8	6.5	6.9	5.4	6.4	7.1	4.1	3.4	3.4	3.2
23	8.7	9.6	8.0	6.0	6.4	5.9	7.8	7.3	3.9	3.4	3.5	3.2
24	8.7	9.9	7.0	5.0	6.4	5.9	10	6.9	3.8	3.4	3.7	3.4
25	9.3	9.9	6.5	5.0	6.4	5.9	13	6.7	3.8	3.4	3.8	3.8
26	9.3	8.5	7.0	5.7	6.4	6.0	12	7.1	3.8	3.5	3.9	3.7
27	8.7	6.0	7.5	6.0	6.4	6.2	10	6.7	3.7	3.4	3.7	3.4
28	8.7	7.0	7.6	6.0	8.0	5.9	9.7	6.6	3.6	3.4	3.8	3.9
29	8.7	7.5	7.4	6.0	---	5.7	10	6.4	3.6	3.4	4.0	3.5
30	8.7	8.0	7.0	6.0	---	5.9	10	6.5	3.6	3.5	6.2	3.2
31	9.9	---	4.5	6.2	---	5.9	---	7.1	---	3.6	4.5	---
TOTAL	276.9	276.6	232.8	201.0	191.7	186.1	237.4	230.4	163.7	108.2	111.9	105.6
MEAN	8.93	9.22	7.51	6.48	6.85	6.00	7.91	7.43	5.46	3.49	3.61	3.52
MAX	9.9	11	8.7	11	8.0	6.9	13	11	8.1	3.7	6.2	4.2
MIN	8.7	6.0	4.5	5.0	6.4	5.4	5.9	6.2	3.6	3.3	3.2	3.1
AC-FT	549	549	462	399	380	369	471	457	325	215	222	209

CAL YR 1976 TOTAL 8084.3 MEAN 22.1 MAX 72 MIN 4.5 AC-FT 16040
WTR YR 1977 TOTAL 2322.3 MEAN 6.36 MAX 13 MIN 3.1 AC-FT 4610

12502500 AHTANUM CREEK AT UNION GAP, WA

LOCATION.--Lat 46°32'08", long 120°28'20", in SE¼SW¼ sec.8, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left upstream wingwall of Union Pacific Railway bridge at Union Gap, 1.0 mi (1.6 km) south of town of Union Gap, and at mile 0.6 (110 km).

DRAINAGE AREA.--173 mi² (448 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May to November 1904, August 1907 to July 1908, March to October 1910, April 1911 to September 1914, May 1951 to April 1953, August 1960 to current year. Published as "near Yakima" 1904, 1907-08, 1910-12. Records for water years 1913-14 are published in WSP 1286.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 940 ft (287 m), from topographic map. Prior to Sept. 30, 1914, nonrecording gage at approximately same site at various datums. May 12, 1951 to Sept. 30, 1972, water-stage recorder at present site at datum 3.00 ft (0.914 m) higher.

REMARKS.--Water-discharge record good. Diversions and groundwater withdrawals for irrigation of about 9,000 acres (36 km²) above station.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,100 ft³/s (87.8 m³/s) Jan. 16, 1974, gage height, 10.36 ft (3.158 m); no flow many days during September and October 1904.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50 ft³/s (1.42 m³/s) Dec. 8, gage height, 3.08 ft (0.939 m); minimum, 3.7 ft³/s (0.10 m³/s) Aug. 18; minimum gage height, 2.29 ft (0.698 m), July 2, Aug. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	25	26	36	28	34	19	19	15	5.2	6.5	12
2	27	25	29	36	28	32	19	21	21	5.6	4.3	12
3	28	25	33	37	29	34	19	25	20	7.6	4.9	13
4	28	25	37	35	29	33	19	24	21	7.6	6.2	13
5	28	25	40	31	29	32	17	23	25	8.4	8.8	13
6	30	25	43	31	29	31	14	25	23	9.3	8.0	12
7	28	25	45	31	29	30	14	31	21	7.6	6.2	11
8	27	25	47	29	29	31	14	33	15	6.5	6.8	10
9	28	25	49	29	29	30	14	31	13	7.6	9.3	10
10	29	25	44	29	29	29	16	30	13	8.0	8.4	10
11	28	25	42	29	29	29	19	33	12	10	8.0	9.3
12	27	25	42	30	31	30	17	31	12	8.8	8.0	4.9
13	27	25	42	31	30	30	20	30	13	9.3	5.6	4.9
14	27	25	40	33	30	28	20	28	12	8.0	7.6	6.2
15	25	25	40	34	29	28	20	26	11	8.4	9.3	5.2
16	22	25	40	34	28	28	20	22	10	8.0	6.2	7.2
17	21	25	40	35	29	28	19	19	15	16	4.6	11
18	22	26	40	35	28	27	15	19	14	17	4.0	14
19	22	26	39	36	28	28	14	19	12	14	5.9	13
20	22	26	37	37	26	27	14	18	12	14	5.9	13
21	23	26	35	37	26	26	15	17	13	14	6.5	13
22	23	26	35	36	26	25	15	13	14	13	6.5	14
23	23	26	38	36	25	24	14	14	10	7.6	6.8	15
24	23	26	37	35	25	24	13	20	6.8	8.4	6.2	17
25	24	26	35	34	25	24	13	20	5.9	9.7	6.5	17
26	25	25	37	31	25	23	15	18	5.2	9.3	6.8	17
27	25	25	40	33	25	22	15	19	5.9	7.6	7.6	17
28	25	26	38	29	33	22	15	20	6.8	6.5	8.8	20
29	25	26	39	28	---	20	17	20	6.8	7.2	11	19
30	25	26	39	28	---	22	19	19	5.9	7.2	13	19
31	25	---	39	28	---	20	---	19	---	8.8	13	---
TOTAL	788	761	1207	1013	786	851	494	706	390.3	286.2	227.2	372.7
MEAN	25.5	25.4	38.9	32.7	28.1	27.5	16.5	22.8	13.0	9.23	7.33	12.4
MAX	30	26	49	37	33	34	20	33	25	17	13	20
MIN	21	25	26	28	25	20	13	13	5.2	5.2	4.0	4.9
AC-FT	1560	1510	2390	2010	1560	1690	980	1400	774	568	451	739

CAL YR 1976 TOTAL 28834.0 MEAN 78.8 MAX 300 MIN 18 AC-FT 57190
WTR YR 1977 TOTAL 7883.4 MEAN 21.6 MAX 49 MIN 4.0 AC-FT 15640

YAKIMA RIVER BASIN

12502500 AHTANUM CREEK AT UNION GAP, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969, 1971, March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR., 1975							
12...	1515	145	182	7.0	--	59	23
14...	1015	123	216	5.0	--	32	11
18...	0915	129	215	5.0	4	24	8.4
21...	1015	117	230	3.5	2	33	10
25...	1045	104	225	6.0	3	34	9.5
27...	1025	96	223	4.0	3	12	3.1
31...	1010	93	210	5.5	4	79	20
APR							
03...	1020	98	210	5.0	1	11	2.9
07...	1045	95	210	6.5	1	10	2.6
09...	1125	92	217	6.5	1	10	2.5
14...	1125	136	170	6.5	3	60	22
18...	1135	151	180	9.0	--	115	47
22...	1125	122	170	9.0	5	42	14
24...	1125	136	165	9.0	5	49	18
29...	1105	127	160	9.0	7	54	19
MAY							
02...	1145	84	180	10.0	6	49	11
06...	1120	138	155	11.0	7	46	17
10...	1210	195	135	14.0	10	149	78
15...	1050	333	110	13.0	30	319	287
18...	1905	291	120	12.0	20	182	143
24...	1045	174	130	12.0	10	94	44
31...	1100	240	115	16.0	30	238	154
JUN							
01...	1930	288	100	17.0	30	238	185
04...	1520	321	100	16.0	20	212	184
09...	1445	230	120	13.0	10	114	71
11...	1430	205	130	16.0	10	116	63
18...	1340	190	125	13.0	10	82	42
20...	1425	185	125	16.0	10	83	41
24...	1500	141	140	16.0	10	72	27
26...	1455	174	120	14.0	8	54	25
JUL							
01...	1500	75	190	16.0	10	33	6.7
03...	1500	72	190	17.0	10	45	8.7
08...	1215	67	210	20.0	10	55	9.9
11...	1220	50	230	19.0	10	53	7.2
15...	1600	32	280	18.0	5	26	2.2
17...	1350	28	280	18.0	4	7	.53

12502500 AHTANUM CREEK AT UNION GAP, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUL , 1975							
21...	1500	19	370	22.3	6	15	.77
25...	1200	12	370	21.9	2	8	.26
29...	1200	9.0	300	18.2	6	9	.22
AUG							
01...	1215	10	390	19.4	4	8	.22
05...	1215	7.0	330	21.0	6	12	.23
13...	1315	11	395	20.4	2	9	.27
18...	1600	33	415	18.6	9	38	3.4
21...	1600	11	329	22.0	2	43	1.3
28...	1115	31	360	16.4	3	13	1.1
SEP							
04...	1350	29	340	17.4	1	7	.55
11...	1110	22	390	16.4	1	7	.42
18...	1705	22	380	16.7	1	10	.59
25...	1200	24	350	15.3	2	8	.52
OCT							
20...	1020	19	400	11.4	1	7	.36
MAR , 1976							
03...	0935	--	222	2.0	6	11	--
09...	1600	72	155	9.4	5	27	5.2
17...	0940	86	170	6.8	7	24	5.6
23...	0935	92	188	5.4	8	23	5.7
25...	1025	89	168	8.2	5	23	5.5
31...	0815	90	202	8.0	3	38	9.2
APR							
01...	1530	89	182	9.0	3	22	5.3
05...	1605	94	152	13.2	3	46	12
09...	0830	260	127	6.8	15	319	224
13...	0950	235	135	7.6	6	104	66
15...	1725	195	145	9.4	5	68	36
20...	1625	147	156	11.8	4	81	32
23...	0930	118	181	7.4	3	45	14
26...	1700	98	175	11.4	3	47	12
29...	1615	84	190	14.7	2	37	8.4
MAY							
04...	0900	322	119	10.0	6	123	107
06...	1515	183	120	13.9	4	107	53
11...	0915	291	100	8.6	10	176	138
13...	1530	275	92	14.5	--	160	119
20...	1345	190	125	12.0	8	112	57
24...	1430	165	124	11.0	3	104	46
27...	1555	167	122	12.1	4	88	40
JUN							
01...	1630	149	143	13.1	3	35	14
03...	1445	132	155	13.2	3	28	10
07...	1400	115	165	15.9	3	36	11
11...	0915	153	117	12.0	4	63	26
15...	0830	115	163	13.5	3	41	13
17...	1415	153	107	17.4	3	104	43
21...	1415	174	123	15.5	4	60	28
25...	1015	120	137	12.1	3	32	10
28...	2045	83	154	19.6	4	31	6.9
JUL							
01...	1600	90	156	15.8	2	166	40
06...	2100	83	158	20.2	4	31	6.9
09...	0845	93	175	16.3	4	41	10
13...	1315	73	207	18.0	5	27	5.3
15...	1500	53	215	20.9	5	26	3.7
20...	0900	33	195	17.5	6	21	1.9
22...	2030	32	225	19.0	3	23	2.0
27...	0915	20	335	16.1	3	16	.86
29...	1545	21	320	20.5	4	16	.91
AUG							
02...	1625	24	310	19.0	3	13	.84
05...	1530	21	375	20.6	2	51	2.9
09...	1750	27	330	21.1	2	4	.29
17...	1705	29	320	18.5	3	15	1.2
19...	1530	29	338	16.2	3	10	.78
23...	1545	23	345	20.2	2	8	.50
26...	1545	32	335	17.7	2	11	.95
30...	1945	28	305	20.4	3	13	.98
SEP							
02...	1815	22	365	19.9	2	8	.48
07...	2000	20	320	15.7	3	11	.59
09...	1815	19	285	17.4	2	8	.41
14...	1215	16	325	14.3	2	6	.26
17...	1400	16	350	16.4	2	13	.56
20...	1915	18	335	--	2	10	.49
23...	1600	18	332	18.6	2	9	.44
27...	1615	18	325	17.9	3	20	.97

12503950 YAKIMA RIVER AT PARKER, WA

LOCATION.--Lat 46°30'22", long 120°27'07", in NE¼NW¼ sec.28, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, at road bridge 0.7 mi (1.1 km) east of Parker, 0.8 mi (1.3 km) upstream from Sunnyside diversion dam, and at mile 104.6 (168.3 km).

DRAINAGE AREA.--3,660 mi² (9,480 km²), approximately.

PERIOD OF RECORD.--Water years 1959-70, 1973 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1959 to September 1970.
pH: August 1959 to September 1970.
WATER TEMPERATURE: August 1959 to September 1970.

REMARKS.--Records prior to October 1972 collected at this site and published as 12505000 "near Parker."

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
OCT							
05...	1635	1730	129	8.4	14.1	--	4
NOV							
03...	1625	1300	205	8.2	10.5	30	7
DEC							
15...	1545	1020	228	8.1	3.2	17	6
JAN							
19...	1625	2040	153	7.5	1.0	30	50
FEB							
16...	1545	660	188	8.2	6.7	21	6
MAR							
23...	1500	180	221	8.6	11.7	25	2
APR							
20...	1555	650	139	8.1	12.0	29	4
MAY							
18...	1500	920	130	8.6	15.0	21	2
SEP							
27...	0910	1250	147	7.7	13.0	--	4

DATE	DISSOLVED OXYGEN (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
OCT							
05...	10.8	.10	.01	.10	.29	.09	.04
NOV							
03...	11.2	.27	.01	.08	.31	.12	.07
DEC							
15...	14.1	.46	.02	.17	.34	.18	.14
JAN							
19...	13.2	.27	.01	.32	1.7	.50	.05
FEB							
16...	13.2	.34	.02	.17	.41	.13	.11
MAR							
23...	12.8	.27	.02	.22	.38	.17	.13
APR							
20...	12.6	.15	.01	.07	.23	.10	.07
MAY							
18...	11.6	.12	.01	.12	.41	.09	.02
SEP							
27...	10.2	--	--	.07	.29	.09	.06

12503950 YAKIMA RIVER AT PARKER, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
27...	0910	1250	167	7.7	13.0	4	10.2	96	2300	76	60
27...	1115	1250	160	8.1	13.3	--	11.0	106	--	--	--
27...	1430	1250	160	8.6	13.7	3	11.1	106	1000	84	--
27...	1735	1250	158	8.3	13.7	--	--	--	--	--	--
27...	2125	1250	157	8.1	13.5	3	--	--	4400	100	--
27...	2340	1250	158	7.9	13.3	--	--	--	--	--	--
28...	0230	1250	160	7.8	13.0	4	--	--	17000	720	--
28...	0520	1250	159	7.8	13.2	--	--	--	--	--	--
28...	0850	1250	160	--	13.1	--	--	--	2400	110	--

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
27...	0	16	4.9	8.2	1.8	73	0	60	2.3	3.9
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
SEP										
27...	6.2	.1	19	96	12	.16	.07	.29	.09	.06
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	10	.16	.08	.26	.08	.06
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--

K Results based upon colony counts outside the ideal range.

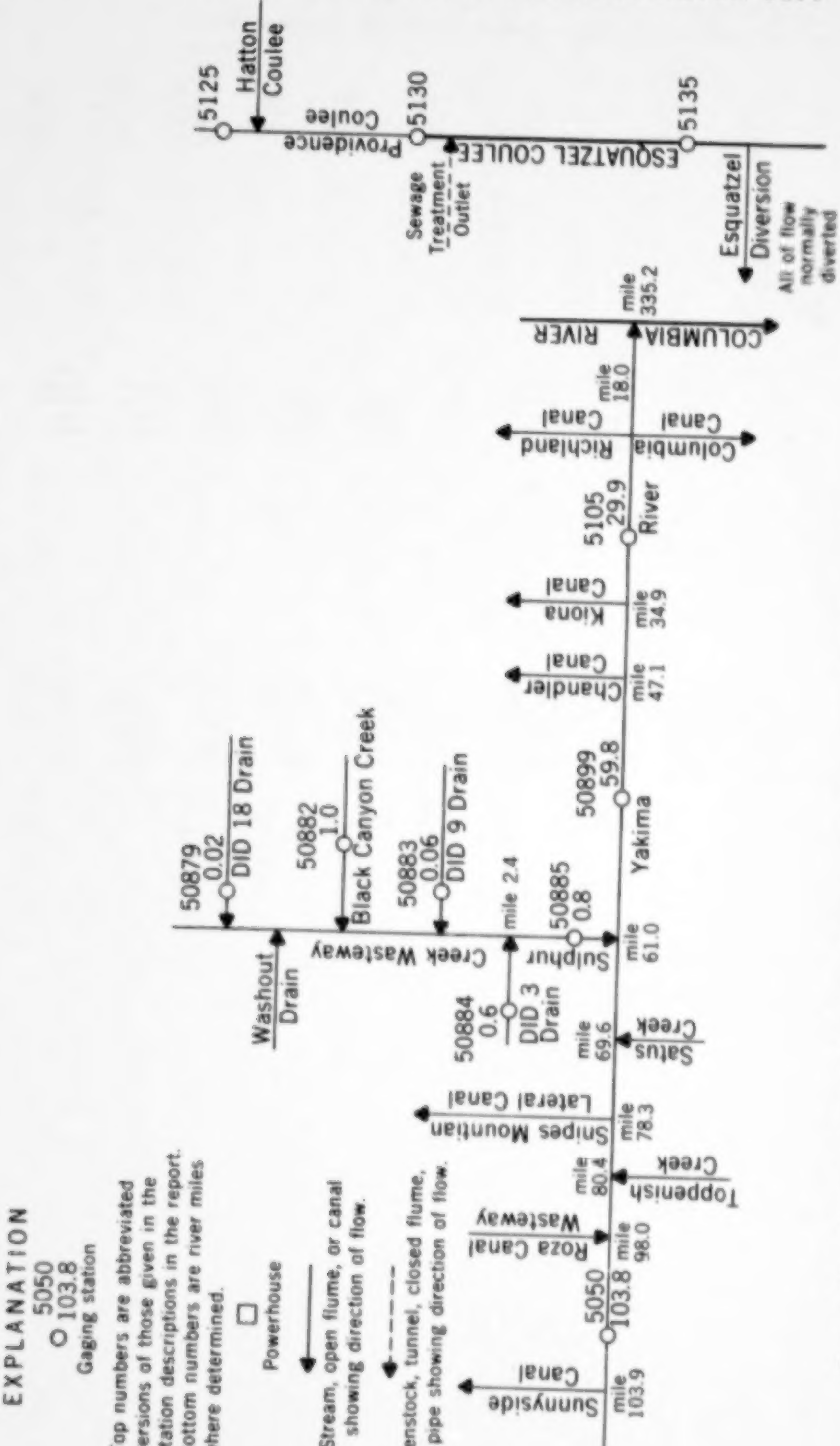
EXPLANATION
5050
103.8
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Sunnyside Canal
mile 103.9
5050
103.8
Roza Canal Wasteway
mile 98.0
Toppenish Creek
mile 80.4
Snipes Mountian Lateral Canal
mile 78.3
Satus Creek
mile 69.6
50884
0.6
DID 3 Drain
Sulphur Creek Wasteway
mile 61.0
mile 2.4
50885
0.8
Washout Drain
50879
0.02
DID 18 Drain
50882
1.0
Black Canyon Creek
50883
0.06
DID 9 Drain
Yakima
50899
59.8
Chandler Canal
mile 47.1
Kiona Canal
mile 34.9
5105
29.9
River
Columbia Richland Canal
mile 18.0
COLUMBIA RIVER
mile 335.2
Esquatzel Diversion
All of flow normally diverted
5135
ESQUATZEL COULEE
Sewage Treatment Outlet
5130
Providence Coulee
Hatton Coulee
5125

Figure 16. Gaging stations in Yakima River basin downstream from Sunnyside Canal and in Esquatzel Coulee.

12504505 SUNNYSIDE CANAL AT DEAN ROAD NEAR GRANGER, WA

LOCATION.--Lat 46°22'39", long 120°09'59", in SW¼SW¼ sec.2, T.10 N., R.21 E., Yakima County, Hydrologic Unit 17030003, 4 mi (6.4 km) east-southeast of Zillah.

PERIOD OF RECORD.--March to September 1975 (discontinued).

WATER QUALITY DATA, MARCH TO SEPTEMBER 1975

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR., 1975							
25...	1550	130	150	7.0	3	21	7.4
27...	1625	180	160	6.0	1	12	5.8
APR							
02...	1100	295	100	7.0	2	15	12
07...	1500	430	160	7.0	5	5	5.8
09...	1500	480	145	8.5	2	18	23
14...	1500	540	120	9.5	3	16	23
22...	1600	540	125	9.0	7	21	31
24...	1600	620	115	11.0	7	28	47
30...	0830	790	125	9.0	10	61	130
MAY							
02...	1600	900	120	11.0	10	65	158
07...	1300	1000	120	12.0	5	87	235
10...	1625	1000	115	15.0	10	100	270
16...	1620	900	90	13.0	30	266	650
18...	2100	1150	90	13.0	20	148	460
25...	0915	1090	90	12.0	20	142	418
31...	1000	1200	90	17.0	--	157	509
JUN							
05...	1030	1300	95	15.0	20	200	706
09...	1055	1400	93	15.0	20	150	567
13...	1015	1600	95	12.0	10	110	475
18...	1555	1260	90	14.0	20	165	561
21...	1030	1150	100	17.0	10	126	391
24...	1030	1300	93	15.0	10	108	379
28...	1230	1200	90	15.0	9	87	282
JUL							
01...	1030	570	105	16.0	10	80	123
03...	1030	1400	120	16.0	10	95	359
08...	1700	1450	90	18.0	20	107	419
11...	1730	1240	95	19.0	10	88	290
17...	0915	1400	100	18.0	8	97	367
21...	1030	1200	110	20.0	10	70	227
23...	1700	1080	110	21.2	6	55	160
25...	1055	1040	110	23.0	6	49	138
28...	1600	1090	115	20.0	8	44	130
AUG							
01...	1715	970	115	20.0	6	33	86
05...	1615	1000	120	21.2	6	31	84
1[illegible]...	1000	1000	111	19.6	3	40	108
19...	0915	1440	120	17.6	5	57	222
21...	1145	1150	120	18.0	2	68	211
27...	1725	930	120	18.0	1	20	50
SEP							
04...	0915	1150	130	16.0	1	14	43
10...	1000	700	100	16.0	1	11	21
16...	1705	1010	130	18.2	1	12	33
25...	1040	990	130	15.5	1	12	32

12504510 SUNNYSIDE CANAL AT MAPLE GROVE ROAD NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°21'27", long 120°02'22", on line between NW¼ sec.14 and NE¼ sec.15, T.10 N., R.22 E., Yakima County, Hydrologic Unit 17030003, at Maple Grove Road crossing, 2.0 mi (3.2 km) northwest of Sunnyside.

PERIOD OF RECORD.--March to October 1976 (discontinued).

WATER QUALITY DATA, MARCH TO OCTOBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
MAR , 1976											
26...	1500	150	160	8.2	33	.12	.38	.50	.16	95	38
29...	1600	180	139	8.3	26	--	--	--	--	75	36
APR											
02...	1630	450	122	8.7	10	--	--	--	--	56	66
05...	1500	510	112	10.6	7	.06	.26	.20	.08	42	57
09...	1145	590	106	9.6	8	--	--	--	--	35	56
13...	1225	620	88	9.6	11	--	--	--	--	53	89
15...	1610	500	90	8.8	6	--	--	--	--	65	70
19...	1320	650	80	12.6	6	.07	.36	.61	.08	33	58
22...	1400	690	117	9.6	5	--	--	--	--	57	106
27...	1100	606	101	9.0	5	--	--	--	--	108	205
30...	1305	722	122	10.6	6	--	--	--	--	70	154
MAY											
03...	1550	750	87	13.1	6	.03	.33	.36	.13	92	186
07...	0850	770	80	10.7	8	--	--	--	--	143	297
10...	1300	800	73	13.0	10	--	--	--	--	256	549
13...	1145	800	78	12.6	13	--	--	--	--	236	519
17...	1145	820	83	12.6	5	--	--	--	--	230	520
21...	0805	820	93	14.2	7	.10	.23	.33	.10	166	363
24...	1145	820	86	12.5	6	--	--	--	--	162	350
27...	1145	820	81	12.5	6	--	--	--	--	210	403
JUN											
01...	1415	820	71	12.9	6	.09	.25	.36	.16	135	299
03...	1115	820	66	11.6	6	--	--	--	--	132	292
08...	1005	780	117	15.1	5	.10	.40	.50	.16	132	278
10...	1205	780	102	15.6	6	.08	.36	.42	.15	180	379
14...	1215	780	98	13.7	3	--	--	--	--	156	329
17...	1145	800	107	15.5	3	--	--	--	--	143	309
21...	1435	800	92	16.3	5	.18	.36	.66	.17	176	376
24...	1115	780	87	16.6	6	--	--	--	--	177	376
28...	1215	780	90	16.6	6	--	--	--	--	179	383
JUL											
01...	1205	805	76	16.6	6	--	--	--	--	227	493
06...	1130	805	82	18.5	6	.11	.31	.62	.10	150	326
08...	1200	800	77	18.2	6	--	--	--	--	215	464
12...	1205	805	86	18.0	6	--	--	--	--	204	443
16...	1150	805	96	18.9	10	--	--	--	--	138	303
19...	1415	815	75	19.6	13	.12	.33	.65	.16	130	286
22...	1205	805	75	18.6	16	--	--	--	--	145	315
26...	1405	840	86	21.0	17	--	--	--	--	477	1080
29...	1130	830	130	17.9	12	--	--	--	--	171	383
AUG											
03...	1200	862	111	17.6	16	.21	.38	.51	.20	130	320
06...	1360	860	104	18.3	8	--	--	--	--	119	276
10...	0950	870	110	16.7	6	.15	.32	.47	.12	98	230
12...	1030	860	113	16.7	12	.11	.27	.38	.05	87	197
16...	1305	850	104	16.1	7	--	--	--	--	98	225
20...	1030	790	111	15.9	5	--	--	--	--	88	188
24...	1115	760	123	16.2	6	--	--	--	--	76	152
27...	1315	730	113	16.6	6	.07	.25	.32	.09	56	110
31...	1200	760	120	16.3	5	--	--	--	--	46	92
SEP											
02...	1445	730	110	16.7	3	--	--	--	--	52	102
07...	1330	730	90	15.0	6	.11	.16	.29	.09	50	99
09...	1130	710	93	16.2	5	--	--	--	--	51	98
15...	1205	700	112	15.6	6	--	--	--	--	45	85
17...	1300	660	112	16.1	3	--	--	--	--	42	73
20...	1515	600	105	--	3	--	--	--	--	36	58
23...	1200	620	117	16.0	3	.10	.22	.40	.10	22	37
27...	1315	610	116	16.0	3	--	--	--	--	20	33
OCT											
01...	1245	635	130	16.5	3	--	--	--	--	18	31
04...	1545	626	130	13.5	6	.13	.26	.37	.09	17	29
08...	1700	625	148	14.3	6	--	--	--	--	22	37
12...	1500	600	142	14.6	6	--	--	--	--	18	29
15...	1200	600	137	12.9	6	--	--	--	--	21	34
18...	1330	600	140	13.2	3	.22	.39	.61	.12	22	36

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	TOTAL ALDRIN (UG/L)	TOTAL CHLOR-DANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DI-AZINON (UG/L)	TOTAL DI-ELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)	TOTAL HEPTA-CHLOR (UG/L)
AUG												
27...	1315	.0	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

DATE	TOTAL HEPTA-CHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALA-THION (UG/L)	TOTAL METHYL PARA-THION (UG/L)	TOTAL METHYL TRI-THION (UG/L)	TOTAL PARA-THION (UG/L)	TOTAL TOX-APHENE (UG/L)	TOTAL TRI-THION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
AUG											
27...	.00	.00	.00	.00	.00	.00	0	.00	.02	.00	.00

12508512 SUNNYSIDE CANAL BELOW SULPHUR CREEK WASTEWAY NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°20'48", long 119°58'20", on line between SW¼ sec.17 and NW¼ sec.20, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, at Sulphur Creek wasteway crossing, 1.7 mi (2.7 km) northeast of Sunnyside.

PERIOD OF RECORD.--March to October 1976 (discontinued).

WATER QUALITY DATA, MARCH TO OCTOBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1976											
25...	1620	76	153	9.2	32	.16	.35	.51	.16	71	15
29...	1530	65	165	9.2	32	--	--	--	--	101	18
APR											
02...	1535	167	128	8.6	17	--	--	--	--	57	26
05...	1555	261	105	9.8	5	.10	.18	.28	.08	36	25
08...	1210	391	108	8.3	8	--	--	--	--	39	41
13...	1240	455	100	10.1	10	--	--	--	--	56	66
15...	1550	535	152	8.8	8	--	--	--	--	56	77
19...	1425	551	107	10.3	5	.05	.22	.27	.09	35	52
22...	1300	540	112	10.1	5	--	--	--	--	45	66
27...	1205	613	100	9.6	5	--	--	--	--	118	195
30...	1350	622	125	11.0	5	--	--	--	--	98	165
MAY											
03...	1530	667	102	13.5	5	.73	.28	1.0	.12	91	156
07...	0940	665	97	11.5	11	--	--	--	--	159	287
10...	1330	710	87	13.2	10	--	--	--	--	445	853
13...	1200	710	85	13.3	13	--	--	--	--	249	477
17...	1215	731	86	12.5	5	--	--	--	--	247	488
21...	0945	731	95	12.5	11	.08	.32	.40	.13	186	367
24...	1205	728	82	12.8	5	--	--	--	--	190	373
27...	1130	731	86	11.6	6	--	--	--	--	287	566
JUN											
01...	1430	728	95	12.0	5	.11	.34	.45	.15	171	336
03...	1130	729	96	11.3	6	--	--	--	--	135	267
08...	1150	643	112	15.6	5	.12	.37	.49	.14	152	264
10...	1200	643	156	15.7	7	.14	.32	.46	.18	108	352
14...	1230	710	105	13.2	4	--	--	--	--	169	206
17...	1200	717	92	15.6	3	--	--	--	--	176	345
21...	1455	710	95	16.4	7	.10	.35	.45	.22	199	381
24...	1145	710	92	16.5	4	--	--	--	--	196	376
28...	1230	710	88	16.6	5	--	--	--	--	231	443
JUL											
01...	1300	716	88	16.8	5	--	--	--	--	229	443
06...	1145	716	96	18.5	6	.14	.42	.56	.20	207	399
09...	1215	716	86	18.4	6	--	--	--	--	253	489
12...	1215	717	92	19.4	4	--	--	--	--	206	399
15...	1320	717	93	19.6	14	--	--	--	--	187	362
19...	1630	726	88	19.5	21	.12	.41	.53	.19	170	333
22...	1300	716	80	18.8	20	--	--	--	--	168	324
26...	1615	730	100	20.6	18	--	--	--	--	210	414
29...	1145	731	102	17.7	15	--	--	--	--	160	316
AUG											
03...	1315	765	147	17.8	14	.22	.35	.57	.18	180	372
06...	1450	730	106	16.5	14	--	--	--	--	143	282
10...	1240	756	108	17.0	8	.15	.30	.45	.11	126	257
12...	1125	720	113	18.0	13	.13	.26	.39	.11	123	242
16...	1400	736	110	16.2	4	--	--	--	--	117	232
20...	1115	675	119	16.3	8	--	--	--	--	107	195
24...	1230	667	116	16.6	7	--	--	--	--	88	156
27...	1300	616	112	16.6	8	.10	.36	.46	.11	79	131
31...	1315	622	135	17.7	5	--	--	--	--	66	111
SEP											
02...	1400	625	113	19.3	6	--	--	--	--	59	100
07...	1305	628	98	15.8	6	.20	.23	.43	.10	61	103
09...	1145	613	93	14.8	7	--	--	--	--	61	101
15...	1300	595	135	15.8	11	--	--	--	--	51	82
17...	1305	541	92	16.3	4	--	--	--	--	38	56
20...	1530	541	107	16.5	4	--	--	--	--	50	73
23...	1215	510	120	17.0	3	.15	.24	.39	.10	32	45
27...	1230	510	122	17.3	3	--	--	--	--	22	30
OCT											
01...	1200	535	130	16.6	4	--	--	--	--	22	32
04...	1600	535	130	13.5	3	.15	.25	.40	.10	16	23
06...	1115	520	130	14.0	3	--	--	--	--	20	28
12...	1600	500	140	10.8	6	--	--	--	--	17	23
15...	1115	495	137	12.1	5	--	--	--	--	20	27
18...	1215	495	165	10.5	3	.25	.32	.57	.13	13	17

12504514 SUNNYSIDE CANAL AT EDISON ROAD NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°19'26", long 119°56'14", at center of east 1/2 sec.28, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, at Edison Road crossing, 3.0 mi (4.8 km) east of Sunnyside.

PERIOD OF RECORD.--March to October 1976 (discontinued).

WATER QUALITY DATA, MARCH TO OCTOBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR., 1976											
26...	1650	50	275	9.0	36	1.2	2.3	3.5	.97	348	67
29...	1410	50	122	9.0	37	--	--	--	--	89	12
APR											
02...	1400	150	140	8.5	22	--	--	--	--	51	21
05...	1630	250	118	9.6	13	.07	.39	.46	.13	60	40
09...	1405	390	112	9.5	12	--	--	--	--	71	75
13...	1035	450	105	9.9	12	--	--	--	--	66	80
15...	1310	470	105	8.2	7	--	--	--	--	101	128
19...	1520	540	108	10.7	6	.07	.32	.39	.12	80	117
22...	1215	570	95	10.5	8	--	--	--	--	142	219
27...	1235	620	89	9.8	8	--	--	--	--	185	310
30...	1045	600	120	10.7	5	--	--	--	--	141	228
MAY											
03...	1655	630	91	13.6	5	.06	.33	.39	.17	153	260
07...	1010	650	84	11.5	12	--	--	--	--	225	395
10...	1145	690	90	13.0	9	--	--	--	--	260	484
13...	1045	690	70	12.1	12	--	--	--	--	394	734
17...	1045	710	90	12.0	6	--	--	--	--	320	613
21...	1230	710	95	11.7	12	.13	.37	.50	.21	250	479
24...	1045	710	85	12.1	6	--	--	--	--	241	462
27...	1240	710	71	12.6	7	--	--	--	--	291	558
JUN											
01...	1115	710	60	10.8	6	.13	.35	.48	.17	216	414
03...	1015	690	93	11.2	5	--	--	--	--	197	367
08...	0930	670	112	15.3	7	.13	.43	.56	.20	230	416
10...	1325	670	104	16.0	8	.11	.52	.63	.14	258	467
14...	1115	690	106	13.0	5	--	--	--	--	219	408
17...	1045	700	113	15.2	4	--	--	--	--	242	457
21...	1330	700	102	16.0	6	.13	.41	.54	.16	260	491
24...	1015	690	94	14.7	6	--	--	--	--	277	516
28...	1115	690	96	16.2	7	--	--	--	--	306	570
JUL											
01...	1145	690	85	15.0	6	--	--	--	--	299	557
06...	1030	690	100	18.2	6	.17	.39	.56	.21	322	600
08...	1100	695	100	18.4	7	--	--	--	--	315	591
12...	1110	695	87	16.1	4	--	--	--	--	280	525
16...	1340	690	100	19.6	20	--	--	--	--	239	445
19...	1230	700	82	19.2	23	.17	.43	.60	.21	222	420
22...	1045	690	102	18.8	25	--	--	--	--	252	469
26...	1300	720	82	20.2	21	--	--	--	--	278	540
29...	1030	710	107	17.7	18	--	--	--	--	229	439
AUG											
03...	1340	720	111	18.1	21	.27	.42	.69	.21	238	463
06...	1505	720	107	18.6	18	--	--	--	--	188	365
10...	1115	740	112	17.5	10	.21	.33	.54	.14	141	282
12...	1140	710	109	19.4	14	.16	.31	.47	.13	118	226
16...	1215	710	112	16.3	9	--	--	--	--	163	312
20...	1230	660	124	15.9	12	--	--	--	--	181	323
24...	1345	625	117	18.7	8	--	--	--	--	118	199
27...	1315	600	121	16.7	12	.12	.29	.41	.12	104	168
31...	1415	600	128	19.1	6	--	--	--	--	94	152
SEP											
02...	1330	610	115	19.5	7	--	--	--	--	98	161
07...	1215	610	92	16.0	7	.15	.24	.39	.11	81	133
09...	1030	600	94	14.7	8	--	--	--	--	87	141
15...	1145	580	135	15.6	6	--	--	--	--	54	85
17...	1400	520	107	16.6	4	--	--	--	--	37	52
20...	1400	520	120	16.7	4	--	--	--	--	45	63
23...	1100	510	117	16.8	3	.18	.28	.46	.10	39	54
27...	1215	490	122	17.5	5	--	--	--	--	45	60
OCT											
01...	1130	525	135	16.7	4	--	--	--	--	43	61
04...	1445	535	133	14.1	5	.15	.26	.41	.12	25	36
08...	1045	510	141	14.1	5	--	--	--	--	30	41
12...	1300	490	143	14.2	5	--	--	--	--	30	40
15...	1100	480	135	12.3	5	--	--	--	--	33	43
18...	1145	480	160	10.5	4	.28	.25	.53	.12	24	31

12504516 SUNNYSIDE CANAL AT BETHNAY ROAD NEAR GRANDVIEW, WA

LOCATION.--Lat 46°17'45", long 119°55'29", near center of sec.3, T.9 N., R.23 E., Yakima County, Hydrologic Unit 17030003, 0.7 mi (1.1 km) west of Grandview Butte and 2.8 mi (4.5 km) north of Grandview.

PERIOD OF RECORD.--March to October 1976 (discontinued).

WATER QUALITY DATA, MARCH TO OCTOBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1976											
29...	1355	50	580	8.6	205	--	--	--	--	570	77
APR											
02...	1345	120	138	9.2	31	--	--	--	--	66	21
05...	1645	220	115	10.3	12	.10	.28	.38	.09	31	18
09...	1055	360	111	9.9	9	--	--	--	--	40	39
13...	1025	410	105	10.0	11	--	--	--	--	55	61
15...	1255	430	103	8.6	8	--	--	--	--	92	107
19...	1535	500	106	10.6	15	.10	.31	.41	.12	82	111
22...	1200	520	119	10.6	6	--	--	--	--	122	171
27...	1320	550	101	10.1	6	--	--	--	--	180	267
30...	1025	545	122	9.7	5	--	--	--	--	146	212
MAY											
03...	1710	565	87	13.8	6	.06	.32	.38	.18	153	233
07...	1055	600	98	11.8	13	--	--	--	--	240	389
10...	1130	640	72	13.2	8	--	--	--	--	299	517
13...	1030	640	85	12.2	13	--	--	--	--	393	679
17...	1030	655	73	12.1	5	--	--	--	--	312	552
21...	1215	660	96	11.4	10	.13	.36	.49	.20	236	421
24...	1030	660	88	12.3	6	--	--	--	--	271	483
27...	1255	660	96	12.7	8	--	--	--	--	309	551
JUN											
01...	1100	660	73	10.9	6	.14	.33	.47	.18	221	394
03...	1000	640	101	11.2	5	--	--	--	--	209	361
08...	0915	620	112	15.8	6	.13	.39	.52	.23	238	398
10...	1335	620	109	16.4	8	.12	.48	.60	.19	243	407
14...	1100	640	107	13.4	4	--	--	--	--	253	437
17...	1030	650	89	15.3	4	--	--	--	--	267	469
21...	1315	650	104	16.3	6	.14	.45	.59	.22	262	460
24...	1000	640	96	15.1	10	--	--	--	--	308	532
28...	1100	640	77	16.4	7	--	--	--	--	324	560
JUL											
01...	1130	640	77	15.3	6	--	--	--	--	305	527
06...	1015	640	102	18.6	6	.19	.46	.65	.27	293	506
08...	1045	645	79	18.6	7	--	--	--	--	379	660
12...	1100	645	85	16.3	5	--	--	--	--	226	394
16...	1420	640	84	19.8	23	--	--	--	--	215	372
19...	1215	650	82	19.6	25	.18	.45	.63	.19	239	419
22...	1030	640	82	19.2	26	--	--	--	--	240	415
26...	1245	670	104	20.6	22	--	--	--	--	272	492
29...	1015	660	107	18.7	21	--	--	--	--	223	397
AUG , 1976											
03...	1420	670	111	18.3	18	.23	.57	.80	.10	211	382
06...	1400	670	112	18.2	21	--	--	--	--	216	391
10...	1130	690	114	17.7	[illegible]	.22	.32	.54	.15	139	259
12...	1230	660	117	19.6	[illegible]	.17	.26	.43	.13	112	200
16...	1200	660	120	16.5	8	--	--	--	--	145	258
20...	1315	610	118	17.3	12	--	--	--	--	140	231
24...	1430	595	119	16.2	9	--	--	--	--	130	205
27...	1400	560	116	17.2	13	.12	.38	.50	.13	99	150
31...	1500	550	126	19.5	7	--	--	--	--	78	118
SEP											
02...	1245	560	105	19.4	8	--	--	--	--	76	115
07...	1200	560	90	16.4	8	.16	.25	.41	.11	77	116
09...	1015	550	94	14.8	2	--	--	--	--	86	128
15...	1130	540	120	15.8	6	--	--	--	--	59	86
17...	1445	480	115	16.7	4	--	--	--	--	36	47
20...	1345	480	120	16.8	4	--	--	--	--	40	52
23...	1045	480	120	16.8	4	.24	.60	.84	.10	32	41
27...	1130	470	125	17.3	5	--	--	--	--	36	46
OCT											
01...	1045	510	138	16.7	5	--	--	--	--	41	56
04...	1430	541	135	14.1	4	.18	.24	.42	.10	29	42
08...	1000	495	141	14.0	4	--	--	--	--	33	44
12...	1215	475	145	14.3	4	--	--	--	--	33	42
15...	1015	465	135	12.2	5	--	--	--	--	28	35
18...	1100	465	160	10.2	3	.27	.24	.51	.10	21	26

12504518 SUNNYSIDE CANAL AT GRANDVIEW, WA

LOCATION.--Lat 46°15'32", long 119°53'25", in NW¼NW¼ sec.24, T.9 N., R.23 E., Yakima County, Hydrologic Unit 17030003, at Forsell Road crossing at northeast edge of Grandview.

PERIOD OF RECORD.--March 1975 to October 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO OCTOBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
28...	1010	200	170	5.8	9	23	12
APR							
01...	1250	200	169	8.0	1	12	6.5
04...	1155	350	130	6.0	2	17	16
08...	1125	350	160	7.0	2	19	18
10...	1125	350	153	9.0	20	20	19
15...	1140	350	130	10.0	1	39	37
21...	1125	370	135	11.0	--	32	32
23...	1140	400	135	10.0	10	48	52
28...	1325	460	130	11.0	20	69	86
MAY							
01...	0940	460	125	11.0	20	88	109
05...	1325	490	125	11.0	20	153	202
08...	2035	550	130	13.0	20	185	275
14...	1905	550	120	13.0	20	252	374
18...	1430	560	105	13.0	30	238	360
23...	1355	560	100	13.0	40	390	590
29...	1800	570	107	15.0	30	220	339
JUN							
01...	1405	570	88	--	30	215	331
03...	1405	570	95	16.0	40	337	519
06...	1625	570	100	15.0	40	301	463
10...	1455	570	100	12.0	30	258	397
16...	1635	570	100	16.0	50	236	363
19...	1505	570	100	15.0	20	286	440
23...	1715	570	105	17.0	30	184	283
25...	1330	570	110	16.0	30	304	468
27...	1330	570	105	14.0	30	256	394
JUL							
02...	1345	550	125	13.0	20	219	325
04...	1330	570	130	18.0	--	265	408
09...	1345	600	115	19.0	10	229	371
12...	1045	600	110	20.0	30	258	418
16...	0845	600	110	17.0	30	286	463
18...	0845	600	115	18.2	30	329	533
22...	1045	600	120	20.8	30	346	561
28...	1100	610	120	23.1	20	206	339
31...	1120	600	125	18.4	15	249	403
AUG							
04...	1045	610	120	19.8	15	387	637
14...	1310	590	130	20.0	8	271	432
19...	1345	570	130	18.6	5	197	303
21...	0800	570	190	17.4	4	161	248
26...	1005	500	130	17.0	2	85	115
SEP							
02...	0900	480	130	15.6	3	76	98
09...	1000	480	140	18.5	1	47	61
16...	1525	490	140	18.6	2	53	70
23...	0945	470	140	15.4	2	33	42

12504518 SUNNYSIDE CANAL AT GRANDVIEW, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO OCTOBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR • 1976											
26...	1030	50	570	7.1	5	4.2	.96	5.2	.08	10	1.3
APR											
02...	1045	155	145	8.2	39	--	--	--	--	403	169
05...	1730	200	122	10.9	9	.13	.26	.39	.08	26	14
09...	1015	340	112	10.7	7	--	--	--	--	36	33
13...	0945	380	107	10.4	13	--	--	--	--	50	51
15...	1050	427	101	8.4	8	--	--	--	--	83	96
19...	1620	465	112	10.3	6	.11	.37	.48	.12	74	93
22...	1115	480	128	10.0	5	--	--	--	--	107	139
27...	1330	500	103	10.6	7	--	--	--	--	200	270
30...	0950	495	128	10.6	5	--	--	--	--	170	227
MAY											
03...	1750	515	97	14.4	6	.09	.29	.38	.18	210	292
07...	1105	550	108	12.6	15	--	--	--	--	252	374
10...	1045	590	98	14.0	9	--	--	--	--	346	551
13...	0945	590	85	12.6	18	--	--	--	--	389	620
17...	0945	600	76	12.7	6	--	--	--	--	376	609
21...	1130	610	97	11.8	13	.16	.44	.60	.20	337	555
24...	0945	610	93	11.0	6	--	--	--	--	277	456
27...	1330	610	76	11.6	10	--	--	--	--	302	497
JUN											
01...	1015	610	79	11.2	6	.16	.32	.48	.17	256	422
03...	0900	590	104	12.0	5	--	--	--	--	220	350
08...	0815	560	104	16.5	7	.18	.43	.61	.21	229	346
10...	1410	560	110	17.3	9	.17	.42	.59	.24	276	417
14...	1015	580	111	14.7	5	--	--	--	--	241	377
17...	0945	590	112	15.6	4	--	--	--	--	271	432
21...	1035	590	110	16.4	7	.17	.49	.66	.27	324	516
24...	0915	580	101	15.6	11	--	--	--	--	319	500
28...	1015	560	102	17.0	7	--	--	--	--	311	467
JUL											
01...	1045	580	97	16.2	6	--	--	--	--	285	446
06...	0930	580	99	19.6	7	.22	.45	.67	.26	388	608
08...	1000	585	110	19.4	6	--	--	--	--	314	496
12...	1020	585	92	16.4	5	--	--	--	--	256	404
16...	1445	580	100	20.7	24	--	--	--	--	246	385
19...	1100	600	88	20.3	24	.23	.79	1.0	.23	240	389
22...	0930	590	102	19.9	26	--	--	--	--	262	417
26...	1200	620	96	21.5	18	--	--	--	--	776	1300
29...	0930	610	115	19.0	23	--	--	--	--	278	458
AUG • 1976											
03...	1450	620	112	19.0	19	.32	.41	.73	.21	227	380
06...	1415	620	118	19.1	13	--	--	--	--	533	892
10...	1350	650	118	18.6	8	.25	.32	.57	.16	139	244
12...	1245	620	120	20.4	16	.20	.32	.52	.15	144	241
16...	1100	620	119	16.8	9	--	--	--	--	188	315
20...	1330	570	122	17.9	9	--	--	--	--	133	205
24...	1515	545	123	19.6	9	--	--	--	--	117	172
27...	1430	520	123	17.9	12	.14	.30	.44	.13	97	136
31...	1530	520	110	20.3	6	--	--	--	--	111	156
SEP											
02...	1145	510	112	19.7	5	--	--	--	--	125	172
07...	1100	510	97	16.9	8	.17	.24	.41	.11	92	127
09...	0930	500	93	15.0	14	--	--	--	--	91	123
15...	1030	490	135	15.7	8	--	--	--	--	70	93
17...	1500	430	120	--	4	--	--	--	--	50	58
20...	1100	430	130	--	4	--	--	--	--	58	67
23...	1000	430	125	16.7	3	.17	.23	.40	.10	46	53
27...	1100	420	133	17.1	5	--	--	--	--	52	59
OCT											
01...	1030	460	140	16.5	5	--	--	--	--	33	41
04...	1330	488	142	14.7	4	.20	.25	.45	.11	29	38
08...	0945	455	150	13.5	5	--	--	--	--	31	38
12...	1200	435	150	14.0	5	--	--	--	--	24	28
15...	1000	425	145	11.7	5	--	--	--	--	21	24
18...	1030	425	165	9.7	3	.30	.23	.53	.09	19	22

12505000 YAKIMA RIVER NEAR PARKER, WA

LOCATION.--Lat 46°29'50", long 120°26'30", in NE¼SE¼ sec.28, T.12 N., R.19 E., Yakima County, Hydrologic Unit 17030003, on left bank 500 ft (152 m) downstream from Sunnyside diversion dam, 1.3 mi (2.1 km) east of Parker, 3.1 mi (5.0 km) downstream from Ahtanum Creek, and at mile 103.8 (167.0 km).

DRAINAGE AREA.--3,660 mi² (9,479 km²).

PERIOD OF RECORD.--April 1908 to current year. Monthly discharge only for some periods pulished in WSP 1316. Prior to October 1916, published as "near Wapato."

REVISED RECORDS.--WSP 982: 1942. WSP 1122: 1934. WSP 1216: 1949-50. WSP 1516: 1955. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 885.89 ft (270.019 m) above mean sea level (Bureau of Reclamation bench mark). See WSP 2133 for history of changes prior to May 3, 1962. May 3, 1962 to Sept. 30, 1971, water-stage recorder at site 500 ft (152 m) downstream at present datum.

REMARKS.--Records good, except those below 100 ft³/s (2.83 m³/s), which are poor. Diversions above station for irrigation of about 200,000 acres (810 km²) above and 220,000 acres (890 km²) below station. During the irrigation season when Sunnyside Canal is carrying water, as much as 30 ft³/s (0.85 m³/s) depending on the stage of the canal, is released ahead of the fish screens and passes river and canal gaging stations unmeasured; Oct. 1, 1965, to Sept. 30, 1971, records include this flow. Flow regulated by diversions and by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes.

COOPERATION.--Gaging station operated and daily discharge records furnished by Bureau of Reclamation; 2 discharge measurements made and records reviewed by Geological Survey.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,000 ft³/s (1,840 m³/s) Dec. 23, 1933, gage height, 15.0 ft (4.57 m), from floodmark; minimum, 0.6 ft³/s (0.017 m³/s) Apr. 22, June 11, 1977, gage height, 1.54 ft (0.469 m); discharge known to be less than 10 ft³/s (0.28 m³/s) for several days during latter part of irrigation season in most years prior to 1936, and many days during 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,230 ft³/s (91.5 m³/s) Oct. 21, gage height, 5.23 ft (1.594 m); minimum, 0.6 ft³/s (0.017 m³/s) Apr. 22, June 11, gage height, 1.54 ft (0.469 m).

MONTHLY DISCHARGE OF YAKIMA RIVER AND CANALS NEAR PARKER, WASH.
WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Month	Runoff in acre-feet						
	Yakima River near Parker	Roza Canal at mile 26.9	Union Gap Canal (estimated)	New Reservation Canal	Old Reservation Canal	Sunnyside Canal	Combined flow of Yakima River and canals (acre-feet)
October	55,280	21,870	308	33,560	440	31,100	142,600
November	63,740	0	0	0	844	0	64,580
December	61,230	0	0	0	1,120	0	62,350
CAL YR 1976	2,003,000	338,600	11,060	674,400	4,920	444,400	3,476,000
January	64,390	0	0	4,770	1,200	0	70,360
February	21,450	0	0	30,350	902	0	52,700
March	505	0	600	41,780	0	4,370	472,600
April	10,900	18,760	2,020	42,540	0	42,630	116,800
May	14,360	27,230	2,050	78,910	0	58,640	181,200
June	19,640	37,530	2,240	84,760	0	65,440	209,600
July	15,300	48,520	2,120	101,200	0	73,910	241,000
August	18,140	52,190	2,050	102,200	0	73,990	248,600
September	14,800	39,210	1,640	84,450	0	52,640	192,700
WTR YR 1977	359,700	245,300	13,030	604,500	4,510	402,700	1,630,000

NOTE.--New reservation, Old Reservation, and Sunnyside Canals divert from river above station and below Union Gap. Roza and Union Gap Canals divert above Union Gap but records given herein show flow in these canals that reaches the valley below Union Gap. Records for Sunnyside Canal furnished by U.S.B.R. Records for Union Gap Canal estimated on basis of discharge measurements and records of flow at canal headworks. Combined flow represents flow of Yakima River that reaches valley below Union Gap.

12505000 YAKIMA RIVER NEAR PARKER, WA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	265	1190	924	1000	677	86	.90	1120	612	157	230	224
2	334	1270	924	932	700	20	.90	983	802	242	83	348
3	323	1250	916	908	635	3.3	.90	497	707	400	114	459
4	340	1260	988	892	565	5.2	1.1	323	635	459	59	420
5	559	1250	972	997	491	3.3	1.1	175	1020	400	330	382
6	621	1200	940	700	459	3.3	61	197	861	334	567	143
7	607	1160	945	692	433	1.3	305	247	752	230	579	31
8	677	1140	980	663	413	34	387	285	544	135	446	102
9	677	1120	1050	752	382	16	809	208	126	243	52	181
10	692	1090	1060	783	340	1.5	472	192	1.1	329	68	213
11	677	1060	1008	783	376	44	157	340	46	291	106	247
12	677	1040	988	852	504	3.3	5.2	90	110	122	192	166
13	497	1020	980	948	628	3.3	105	.90	269	194	257	80
14	215	1000	972	972	721	3.3	214	1.1	285	285	269	166
15	726	997	956	940	600	1.5	114	76	171	80	182	208
16	752	815	964	892	484	1.3	8.9	130	110	285	55	153
17	649	989	988	900	346	1.2	7.1	27	171	446	455	166
18	1190	1020	997	1270	410	1.1	7.1	8.9	206	504	583	109
19	1510	1120	988	2370	317	1.1	7.1	110	285	228	259	34
20	1530	1120	956	2510	214	1.3	5.2	106	219	116	143	76
21	1700	1090	908	2000	192	1.3	7.1	106	166	171	290	59
22	1470	1080	988	1650	171	1.2	1.5	269	214	114	452	241
23	1330	1060	964	1400	90	1.5	7.1	346	203	73	270	336
24	1240	1050	980	1070	121	1.5	263	376	98	59	557	472
25	1240	1030	944	793	96	1.5	686	69	163	148	452	494
26	1280	1060	988	932	135	1.2	762	62	219	272	472	482
27	1180	1010	997	876	139	1.2	205	135	252	291	312	313
28	1300	916	1280	820	175	7.1	1.1	224	219	280	280	178
29	1250	924	1270	783	---	1.2	207	219	219	252	163	368
30	1200	924	1220	707	---	.90	686	144	219	265	414	611
31	1160	---	1130	677	---	.90	---	174	---	307	472	---
TOTAL	27868	32135	30872	32464	10814	254.80	5493.30	7240.90	9904.1	7712	9143	7462
MEAN	899	1071	996	1047	386	8.22	183	234	330	249	295	249
MAX	1700	1270	1280	2510	721	86	809	1120	1020	504	583	611
MIN	215	815	944	663	90	.90	.90	.90	1.1	59	48	31
AC-FT	55280	63740	61230	64390	21450	505	10900	14360	19640	15300	18140	14800

CAL YR 1976 TOTAL 1009683.00 MEAN 2759 MAX 11200 MIN 215 AC-FT 2003000
WTR YR 1977 TOTAL 181363.10 MEAN 497 MAX 2510 MIN .90 AC-FT 359700

12505300 YAKIMA RIVER NEAR TOPPENISH, WA

LOCATION.--Lat 46°24'35", long 120°18'47", in NW¼SW¼ sec.27, T.11 N., R.20 E., Yakima County, Hydrologic Unit 17030003, at State Highway 22 bridge 1.6 mi (2.6 km) north of Toppenish.

DRAINAGE AREA.--3,720 mi² (9,630 km²).

PERIOD OF RECORD.--Water years 1973-75, Sept. 27 to Sept. 28, 1977 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
27...	0940	E300	155	7.7	13.7	3	9.5	90	B200	B15	55
27...	1140	--	158	7.9	14.1	--	10.8	103	--	--	--
27...	1500	--	161	8.2	14.6	2	11.6	112	B200	B32	--
27...	1800	--	161	8.2	14.6	--	--	--	--	--	--
27...	2200	--	164	7.9	14.0	6	--	--	B450	B28	--
27...	2400	--	157	7.8	13.9	--	--	--	--	--	--
28...	0250	--	165	7.6	13.7	3	--	--	B180	B20	--
28...	0540	--	165	7.7	13.4	--	--	--	--	--	--
28...	0900	E300	167	--	13.4	--	--	--	--	--	--

B Results based upon colony counts outside the ideal range.
E Estimated.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
27...	0	14	4.9	8.0	1.6	74	0	61	2.4	3.9
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
SEP										
27...	3.1	.1	20	92	8	.10	.03	.19	.05	.03
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	6	.15	.04	.21	.05	.03
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--	--

12505350 EAST TOPPENISH DRAIN AT WILSON ROAD, NEAR TOPPENISH, WA

LOCATION.--Lat 46°22'04", long 120°15'00", in NW¼SE¼ sec.7, T.10 N., R.21 E., Yakima County, Hydrologic Unit 17030003, 2.5 mi (4.0 km) east of Toppenish.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
06...	1210	22	285	14.0	--	31	1.8
14...	1220	12	340	13.5	1	7	.23
19...	1130	4.0	390	11.5	1	8	.19
21...	1240	4.0	340	10.0	1	14	.34
25...	1305	9.0	390	8.5	1	9	.22
27...	1245	8.0	340	13.0	1	10	.22
31...	1435	8.0	350	14.6	2	9	.19
APR							
03...	1225	7.0	330	13.0	0	6	.08
07...	1145	8.0	355	12.0	1	6	.09
09...	1255	7.0	360	13.0	0	5	.09
14...	1305	7.0	350	10.0	1	6	.11
22...	1225	26	235	13.0	6	24	1.7
24...	1225	30	205	11.0	6	43	3.5
29...	1205	21	300	13.0	6	20	1.1
MAY							
02...	1250	24	240	13.0	6	21	1.4
15...	1720	39	270	15.0	8	44	4.6
18...	2005	43	210	15.0	10	61	7.1
24...	1315	45	200	16.0	10	56	6.8
31...	1330	44	310	18.0	10	57	6.2
JUN							
01...	2035	37	290	18.0	--	39	3.9
04...	1320	39	270	18.0	10	63	6.6
09...	1545	35	300	16.0	10	71	6.7
11...	1700	34	320	17.0	10	79	7.3
18...	1440	34	300	15.0	10	59	5.4
20...	1300	33	330	15.0	10	63	5.6
24...	1330	34	260	17.0	20	95	10
JUL							
01...	1330	41	290	16.0	10	69	7.6
03...	1330	54	250	18.0	10	66	9.6
08...	1400	48	275	20.0	20	75	9.7
11...	1010	20	340	11.0	10	13	.70
11...	1400	46	240	12.0	10	82	10
15...	1645	45	240	19.0	20	82	10
17...	1140	51	280	17.2	10	68	9.4
21...	1300	47	300	19.0	10	62	7.9
25...	1420	48	330	19.2	10	63	8.2
29...	1245	44	310	16.6	10	47	5.6
AUG , 1975							
01...	1415	47	320	18.0	6	24	3.0
05...	1300	52	310	18.4	10	28	3.9
14...	0915	60	280	16.4	2	11	1.8
18...	1525	62	250	18.4	5	27	4.5
20...	1730	90	240	19.5	3	--	--
27...	1240	69	270	17.7	1	21	3.9
SEP							
04...	1200	74	250	16.4	1	15	3.0
10...	1215	49	320	17.8	1	6	.79
17...	1505	42	340	17.4	1	8	.91
23...	1645	42	340	17.6	1	11	1.2
OCT							
22...	1010	20	350	12.6	1	24	1.3
MAR , 1976							
03...	1230	6.0	362	11.2	2	5	.08
10...	1135	6.0	380	12.4	1	1	.01
17...	1145	7.0	390	13.9	2	4	.08
22...	1530	6.0	412	12.2	5	4	.06
25...	1605	6.0	410	13.5	2	4	.06
30...	1630	9.0	340	16.0	3	4	.10
APR							
01...	1500	27	190	11.1	28	555	40
05...	1215	27	180	15.8	3	30	2.2
08...	1535	39	161	10.8	8	43	4.5
12...	1605	50	152	11.4	8	69	8.6
15...	1405	62	140	10.3	7	79	13
20...	1340	44	215	14.2	3	48	5.7
23...	1015	42	252	11.9	3	39	4.4
26...	1525	38	260	13.5	2	41	4.2
29...	1345	40	225	15.7	4	43	4.6
MAY							
04...	1030	40	273	13.3	4	48	5.2
06...	1240	34	315	16.4	2	34	3.1
11...	1000	38	282	13.8	3	42	4.3
14...	0815	35	226	12.3	3	37	3.5
20...	1315	43	285	16.2	4	65	7.5
25...	0830	45	254	11.6	2	37	4.5
28...	0850	49	270	12.1	10	91	12
JUN							
02...	0900	51	252	12.8	3	44	6.1

12505350 EAST TOPPENISH DRAIN AT WILSON ROAD, NEAR TOPPENISH, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
JUN , 1976							
04...	0845	48	285	13.2	2	24	3.1
07...	1315	45	290	16.9	2	29	3.5
11...	0945	46	303	13.7	2	30	3.7
15...	1215	47	290	14.8	2	29	3.7
18...	0915	46	255	15.0	5	47	5.8
21...	1330	52	272	17.3	7	98	14
25...	1045	45	217	14.5	4	41	5.0
29...	0845	51	250	15.4	9	57	7.8
JUL							
02...	0845	54	270	14.2	6	62	9.0
09...	0930	55	215	16.0	6	68	10
13...	1400	49	257	18.0	10	61	8.1
15...	1430	48	247	19.4	4	68	8.8
20...	0945	42	175	16.6	12	46	5.2
23...	0845	43	257	15.7	7	36	4.2
27...	1000	41	235	15.5	10	46	5.1
30...	0900	43	255	16.2	6	35	4.1
AUG							
02...	1435	48	261	17.4	4	40	5.2
05...	1430	45	215	16.5	3	41	5.0
09...	1705	51	255	16.4	2	32	4.4
17...	1515	53	245	17.1	4	28	4.0
19...	1400	57	255	16.3	3	30	4.6
23...	1500	60	237	18.7	3	35	5.7
26...	1500	62	213	17.3	3	39	6.5
30...	1615	63	210	18.9	4	35	6.0
SEP							
03...	0930	59	230	15.9	2	21	3.3
08...	0900	62	195	14.0	2	14	2.3
09...	1500	55	255	16.0	2	17	2.5
14...	1300	56	235	13.7	2	19	2.9
17...	1315	59	250	15.0	1	16	2.5
20...	1045	66	245	--	1	20	3.6
23...	1530	64	255	17.6	1	18	3.1
28...	1030	55	260	15.6	2	16	2.4

12505410 SUB 35 DRAIN AT PARTON ROAD NEAR GRANGER, WA

LOCATION.--Lat 46°20'11", long 120°13'48", in SE¼SE¼ sec.19, T.10 N., R.21 E., Yakima County, Hydrologic Unit 17030003, 1.5 mi (2.4 km) west of Granger.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
11...	1045	23	330	10.5	2	23	1.4
14...	1350	22	335	13.0	1	30	1.8
19...	1145	22	330	11.0	1	26	1.5
25...	1325	22	340	10.5	2	135	8.0
26...	1310	22	330	11.5	--	18	1.1
31...	1455	22	320	10.5	3	22	1.3
APR							
03...	1245	23	320	11.5	1	26	1.6
07...	1245	25	330	12.0	1	17	1.1
09...	1320	24	330	13.5	1	16	1.0
14...	1325	44	270	10.0	1	52	6.2
22...	1340	40	300	14.0	20	100	11
24...	1340	50	280	12.0	20	137	18
29...	1315	50	270	14.0	20	101	14
MAY							
02...	1355	56	265	13.0	20	103	16
06...	1325	69	230	15.0	20	77	14
10...	1350	49	260	15.0	9	78	10
15...	1645	58	300	15.0	7	62	9.7
18...	2025	64	270	16.0	10	72	12
24...	1340	69	230	15.0	20	45	8.4
31...	1355	33	300	17.0	7	34	3.0
JUN							
01...	2100	76	275	19.0	10	32	6.6
04...	1250	65	280	19.0	20	90	16
09...	1610	57	270	17.0	10	74	11
11...	1725	57	280	19.0	10	80	12
18...	1515	61	270	16.0	10	38	6.3
20...	1230	65	290	17.0	8	43	7.5
24...	1300	63	290	16.0	10	29	4.9
JUL							
01...	1300	76	290	16.0	10	71	15
03...	1300	85	275	17.0	10	46	11
08...	1425	78	290	18.0	20	64	13
11...	1430	79	300	18.0	10	71	15
15...	1715	82	280	19.0	20	62	14
17...	1110	84	280	16.4	10	61	14
21...	1230	79	295	18.6	10	50	11
25...	1440	77	280	20.1	10	37	7.7
29...	1315	79	295	16.6	15	56	12
AUG , 1975							
01...	1445	88	300	18.4	10	41	9.7
05...	1330	84	280	18.4	15	38	8.6
20...	1700	82	290	19.6	3	36	8.0
27...	1415	59	280	16.7	2	25	4.0
SEP							
10...	1145	63	320	16.4	2	59	10
17...	1435	52	320	17.0	2	54	7.6
23...	1620	69	310	17.7	2	64	12
OCT							
22...	1000	31	350	11.0	3	38	3.2
MAR , 1976							
03...	1255	22	299	12.0	1	4	.24
10...	1155	22	430	11.0	1	7	.42
17...	1120	22	329	12.9	1	7	.42
22...	1305	58	351	12.2	5	9	1.4
25...	1350	30	290	11.7	23	103	8.3
30...	1615	31	305	14.6	18	74	6.2
APR							
01...	1430	45	300	13.6	7	105	13
05...	1350	42	290	17.0	7	97	11
08...	1510	49	268	12.4	8	168	22
12...	1545	53	258	12.6	6	181	26
15...	1350	52	268	12.9	8	206	29
20...	1320	52	278	15.0	6	124	17
23...	1030	50	309	11.5	5	119	16
28...	1505	56	272	14.0	6	141	21
29...	1335	66	261	15.3	5	113	20
MAY							
04...	0945	68	262	12.7	6	115	21
06...	1230	58	248	15.2	5	140	22
11...	0945	67	237	12.4	8	129	23
14...	0800	66	208	11.4	9	98	17
20...	1300	67	207	15.3	9	91	16
25...	0845	66	263	11.2	3	80	14
28...	0900	75	246	11.6	7	85	17
JUN							
02...	0915	76	203	12.3	6	73	15
04...	0900	86	220	12.9	5	71	16
07...	1315	80	235	17.6	4	96	21
11...	1000	72	280	14.1	6	54	10

12505410 SUB 35 DRAIN AT PARTON ROAD NEAR GRANGER, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUN , 1976							
15...	1230	82	223	15.6	6	69	15
18...	0930	82	243	16.1	5	62	14
21...	1315	70	240	17.6	6	38	7.2
25...	1100	70	240	14.6	7	81	15
JUL							
02...	0900	89	215	14.0	7	101	24
07...	0945	94	250	16.8	6	93	24
09...	0945	95	265	15.8	5	58	14
13...	1410	86	255	18.7	6	56	13
15...	1415	81	249	19.2	3	52	11
20...	1000	78	185	17.0	19	88	19
23...	0900	84	162	16.6	16	88	18
26...	0900	80	250	15.9	9	86	19
27...	1015	84	270	15.8	15	64	15
30...	0915	84	232	16.6	25	65	15
AUG							
02...	1430	82	187	17.9	11	40	8.8
05...	1415	78	260	18.6	7	44	9.3
09...	1655	92	250	19.4	6	41	10
17...	1500	84	250	17.2	5	32	7.3
19...	1345	82	252	15.7	4	20	6.2
23...	1445	81	243	18.5	2	11	2.4
26...	1445	74	250	16.3	3	13	2.6
30...	1600	56	320	18.5	3	23	3.5
SEP							
03...	0945	84	235	14.5	3	16	2.8
08...	0915	79	265	13.8	5	69	15
09...	1445	76	285	16.4	4	18	3.7
14...	1315	76	210	14.3	4	20	4.8
17...	1300	80	270	15.5	3	17	3.7
20...	1830	82	265	--	3	18	4.0
23...	1515	86	277	17.3	2	16	3.7
28...	1015	79	260	15.4	2	19	2.1

12505450 GRANGER DRAIN AT GRANGER, WA

LOCATION.--Lat 46°20'37", long 120°11'09", in SE¼NE¼ sec.21, T.10 N., R.21 E., Yakima County, Hydrologic Unit 17030003, in a feed lot in Granger.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
17...	0820	26	715	9.5	3	98	6.9
20...	0820	25	720	8.5	10	75	5.1
24...	0835	25	700	9.0	2	68	4.6
26...	0830	23	700	8.5	--	58	3.6
APR							
02...	1250	26	640	10.5	1	72	5.1
04...	0820	26	620	9.0	1	98	6.9
15...	0830	29	610	10.0	1	232	18
21...	0820	35	500	9.0	--	530	50
23...	0835	38	495	10.0	20	372	38
MAY							
01...	0820	44	425	10.0	40	786	93
02...	0835	46	420	11.0	40	1080	134
08...	1425	40	525	17.0	40	776	84
18...	0830	49	350	15.0	40	728	96
18...	1535	51	420	15.0	40	568	78
24...	1605	48	450	14.0	40	545	71
31...	0830	55	420	17.0	--	648	96
JUN							
06...	1030	62	390	12.0	60	812	136
09...	1030	68	310	15.0	--	851	156
11...	1940	51	430	20.0	40	713	98
16...	1030	64	360	15.0	40	1040	180
18...	1015	72	370	15.0	40	816	159
23...	1030	58	350	18.0	50	839	131
24...	1015	62	370	17.0	40	859	144
26...	1315	57	390	16.0	30	844	130
JUL							
01...	1115	16	440	16.0	40	899	39
03...	1115	56	430	18.0	30	1240	187
04...	1510	23	600	13.5	--	62	3.9
08...	1615	49	500	19.0	50	817	108
11...	1700	62	440	21.0	40	1040	174
17...	0955	67	390	16.6	40	867	157
21...	1100	58	400	19.8	--	618	97
23...	1300	60	440	21.8	60	675	109
25...	1630	55	385	24.1	65	814	121
29...	1545	57	390	20.1	65	686	106
AUG							
05...	1600	68	400	22.2	65	--	--

12505450 GRANGER DRAIN AT GRANGER, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
AUG., 1975							
14...	1025	71	340	--	15	661	127
19...	0930	62	430	15.6	10	660	102
21...	1125	61	410	18.0	10	425	92
25...	1030	81	400	20.4	--	303	65
28...	1020	81	460	16.4	8	315	68
SEP							
04...	0930	81	410	13.0	5	300	65
10...	1045	75	420	15.6	4	276	55
11...	1015	71	440	16.0	4	268	56
16...	1035	65	470	16.4	4	191	36
18...	1015	72	440	17.0	7	[illegible]	37
22...	1715	61	460	18.2	4	151	26
25...	1120	65	460	14.5	4	135	24
OCT							
21...	0840	62	720	11.4	7	275	45
MAR., 1976							
03...	1425	25	670	11.0	5	96	6.3
09...	1505	26	600	13.7	3	73	5.1
17...	1215	25	660	12.9	7	88	6.0
22...	1450	25	730	12.0	28	104	7.0
25...	1330	26	690	12.0	60	257	18
30...	1600	23	570	14.0	6	99	6.1
APR							
01...	1145	25	690	12.6	3	109	6.7
05...	1300	30	635	15.7	2	51	4.1
08...	1450	33	490	12.7	12	416	37
12...	1530	27	575	13.0	9	310	24
15...	1335	41	510	13.0	12	561	61
20...	1305	36	550	15.0	13	481	46
23...	1130	43	500	12.0	14	638	74
26...	1450	42	520	13.0	24	1340	152
29...	1300	42	420	15.1	18	820	93
MAY							
04...	1045	51	411	12.9	13	981	135
06...	1155	55	300	14.0	23	1060	157
11...	1015	57	322	12.1	18	993	153
14...	0830	53	283	11.1	27	884	127
20...	1245	61	410	15.2	28	856	139
25...	0900	62	303	18.4	13	887	135
28...	0915	73	300	18.7	26	921	174
JUN., 1976							
02...	0930	76	350	18.9	26	967	198
04...	0915	62	360	12.1	24	957	160
07...	1300	64	300	17.7	16	835	144
11...	1015	110	425	13.7	23	548	163
14...	1415	65	400	18.3	8	656	115
18...	0945	66	337	15.4	23	1480	262
21...	1235	76	305	18.9	37	287	57
25...	1115	76	342	14.3	19	826	165
29...	0915	67	370	16.4	30	888	161
JUL							
01...	1530	62	305	18.0	22	945	158
07...	1000	72	350	17.3	28	946	184
09...	1000	74	360	16.7	26	868	163
13...	1425	60	375	20.2	17	682	111
15...	1405	64	375	20.0	20	637	110
20...	1015	58	305	17.0	130	961	150
23...	0915	61	310	16.0	82	895	145
27...	1030	61	375	16.0	95	986	160
30...	0930	62	375	17.4	52	796	133
AUG							
02...	1415	76	305	20.6	35	632	126
05...	1600	76	375	21.0	56	763	152
09...	1640	43	385	21.0	23	484	56
17...	1245	64	385	17.6	20	374	65
19...	1330	58	430	16.3	16	294	46
23...	1415	57	390	20.6	22	286	46
26...	1430	65	395	17.7	23	360	63
30...	1545	62	445	20.4	22	295	49
SEP							
03...	1000	58	320	15.1	26	374	51
08...	0930	58	320	12.6	16	220	36
09...	1430	57	430	16.6	12	208	32
14...	1330	55	380	15.0	14	197	29
17...	1245	58	415	15.6	6	170	26
20...	1015	51	415	--	6	121	17
23...	1500	53	450	18.2	7	117	17
28...	1100	57	420	15.4	10	152	23

12505500 MARION DRAIN NEAR GRANGER, WA

LOCATION.--Lat 46°19'18", long 120°13'26", in SE¼SW¼ sec.29, T.10 N., R.21 E., Yakima County, Hydrologic Unit 17030003, at State Highway 22 crossing, 2.0 mi (3.2 km) southeast of Granger.

PERIOD OF RECORD.--Water years 1974-1975 (previously published), March to October 1975 (discontinued).

WATER QUALITY DATA, MARCH TO OCTOBER 1975

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	SUS- PENDED SEDI- MENT (MG/L)	SUS- PENDED SEDI- MENT DIS- CHARGE (T/DAY)
MAR., 1975							
11...	1115	251	350	9.5	2	14	9.5
14...	1305	227	320	10.5	1	17	10
19...	1210	287	305	8.5	3	51	40
21...	1335	288	300	8.0	1	27	21
25...	1340	332	255	8.0	5	47	42
27...	1325	320	280	7.0	1	52	45
31...	1510	338	270	9.5	3	35	32
APR							
03...	1325	401	265	8.0	2	55	60
07...	1305	426	265	8.5	2	54	62
09...	1340	272	235	8.5	1	38	28
15...	1345	320	215	8.5	4	54	47
22...	1355	256	260	11.0	10	62	43
24...	1355	263	260	11.0	8	56	40
29...	1325	320	260	11.0	--	50	43
MAY							
01...	0845	257	300	11.0	9	54	37
06...	1340	416	270	13.0	3	67	75
08...	1455	401	300	14.0	15	63	68
15...	1625	618	260	17.0	20	154	257
16...	0900	614	260	13.0	26	170	247
26...	1355	215	235	14.0	20	87	51
31...	1410	275	260	18.0	20	150	111
JUN							
04...	1230	265	265	12.0	30	152	109
06...	1150	263	310	10.0	30	74	53
11...	1740	398	265	16.0	10	67	72
16...	1105	143	260	14.0	10	79	31
20...	1215	137	260	17.0	20	103	38
23...	1105	448	275	15.0	20	201	243
26...	1240	118	260	16.0	20	65	21
JUL							
01...	1205	144	260	16.0	20	53	21
03...	1205	170	270	17.0	30	58	27
08...	1005	105	290	19.0	20	62	18
11...	1005	55	295	16.0	30	55	8.2
15...	1730	90	295	18.0	30	156	38
17...	1100	104	280	16.4	9	88	25
21...	1215	96	250	19.1	20	42	11
25...	1500	80	270	21.2	8	57	12
29...	1330	58	290	17.3	15	96	15
AUG							
01...	1500	61	290	18.6	10	29	4.8
05...	1340	77	225	19.2	25	127	26
13...	1630	75	290	18.8	4	82	17
18...	1655	173	280	18.6	17	27	13
20...	1640	200	320	19.6	3	100	54
27...	1400	209	270	17.2	2	52	29
SEP							
04...	1105	97	260	15.3	2	131	34
10...	1130	212	260	16.2	1	--	--
17...	1420	149	290	16.2	5	32	13
22...	1015	224	270	17.2	2	35	21
OCT							
22...	0950	426	605	10.0	--	53	61

12507508 TOPPENISH CREEK AT INDIAN CHURCH ROAD NEAR GRANGER, WA

LOCATION.--Lat 46°18'52", long 120°11'53", in NW¼NE¼ sec.33, T.10 N., R.21 E., Yakima County, Hydrologic Unit 17030003, 1.7 mi (2.7 km) south of Granger.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
MAR , 1975							
11...	1215	267	200	8.5	8	50	63
17...	0945	294	295	8.5	15	88	68
19...	1250	267	320	7.0	8	45	35
21...	1610	247	300	8.0	1	50	40
25...	1505	205	300	9.0	10	70	60
27...	1505	108	330	8.0	7	77	58
APR							
02...	1300	107	250	9.0	2	41	14
03...	1400	116	300	8.5	2	30	9.7
07...	1450	137	280	10.0	10	42	35
09...	1510	452	260	9.5	2	58	71
14...	1515	259	230	9.0	4	50	60
17...	1505	400	230	12.0	10	60	53
24...	1505	476	250	12.0	8	41	53
28...	1500	670	260	13.0	10	38	44
30...	1425	642	265	14.0	10	45	59
MAY							
06...	1510	180	260	14.0	--	36	17
07...	1930	157	280	15.0	--	41	22
15...	1450	267	260	17.0	9	37	27
18...	1950	280	260	18.0	9	64	36
24...	1930	207	260	15.0	10	32	16
25...	1930	190	240	15.0	10	38	16
31...	1540	152	290	18.0	10	54	22
JUN							
04...	1045	147	265	17.0	20	49	27
05...	1610	144	280	13.0	20	67	26
11...	1910	104	290	19.0	25	72	21
13...	1630	80	310	19.0	10	67	16
20...	1030	50	300	16.0	10	39	9.7
21...	1045	50	280	20.0	10	31	4.5
26...	1160	40	300	17.0	10	64	5.9
JUL							
01...	1145	72	280	16.0	10	35	6.6
03...	1100	40	285	18.0	10	44	19
08...	1505	30	350	19.0	10	21	1.7
11...	1505	11	370	21.0	50	20	.56
17...	1010	21	330	17.4	9	26	1.6
21...	1115	24	320	20.6	25	40	2.6
25...	1600	43	305	20.4	10	15	1.7
28...	1515	40	320	22.1	10	22	1.2
29...	1515	6.0	305	21.1	10	61	.89
AUG							
01...	1045	16	330	23.0	6	19	.72
05...	1530	27	310	22.4	6	48	3.6
13...	1705	18	325	20.6	5	16	.76
18...	1300	101	300	20.2	8	61	29
20...	1600	74	240	21.0	3	53	11
27...	0950	111	270	17.4	1	50	15
SEP							
04...	1010	117	260	15.3	2	28	8.6
10...	1110	104	260	16.5	1	29	8.5
16...	1050	60	290	17.0	2	25	4.5
23...	1000	65	280	17.6	4	31	7.1
MAR , 1976							
03...	1330	21	320	9.0	6	18	.62
09...	1450	25	390	9.0	9	34	1.6
17...	1230	56	285	10.0	11	51	7.4
22...	1630	9.0	233	8.2	20	63	1.5
25...	1230	37	250	8.2	8	76	7.4
30...	1505	30	251	12.0	17	97	9.5
APR							
01...	1130	62	233	9.4	7	72	17
05...	1340	76	225	14.1	6	66	16
08...	1440	57	212	11.7	6	486	75
12...	1515	183	240	13.3	12	437	216
15...	1325	283	215	9.7	7	38	27
20...	1250	142	208	13.9	5	53	20
23...	1115	130	234	14.2	5	60	22
26...	1405	113	220	11.7	5	45	16
29...	1205	236	250	12.0	5	47	46
MAY							
04...	1100	282	262	13.5	5	36	29
06...	1140	392	263	13.5	7	67	71
11...	1020	314	230	12.1	7	52	46
14...	0845	235	240	13.1	8	50	37
20...	1230	122	215	13.4	5	30	11
25...	0915	120	215	11.3	4	43	14
28...	0930	119	264	11.7	4	39	13
JUN							
02...	1040	142	237	13.0	6	40	16

12507508 TOPPENISH CREEK AT INDIAN CHURCH ROAD NEAR GRANGER, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
JUN , 1976							
04...	0930	139	265	13.0	6	52	20
07...	1215	112	235	16.1	5	51	15
11...	1030	92	235	15.0	10	53	13
15...	1245	95	270	16.0	9	58	15
18...	1000	84	257	17.2	7	50	11
21...	1225	76	260	17.7	6	43	8.8
25...	113[illegible]	39	300	16.1	7	30	3.2
29...	09[illegible]	43	245	17.9	7	40	4.6
JUL							
01...	151[illegible]	9.0	345	20.4	4	19	.46
07...	1015	13	305	18.8	6	33	1.2
09...	1015	11	295	17.6	5	31	.92
13...	1435	81	247	20.2	6	40	8.7
15...	1350	57	240	20.9	6	49	7.5
20...	1030	41	185	19.0	18	49	5.4
23...	0930	31	215	17.6	16	77	6.4
27...	1045	10	305	17.8	10	18	.49
30...	0945	10	310	18.8	20	68	1.8
AUG							
02...	1400	20	309	19.4	15	86	4.6
05...	1330	17	310	20.2	7	53	2.4
09...	1615	48	255	22.2	7	39	5.1
17...	1230	52	260	18.0	7	25	3.5
19...	1315	54	245	17.1	7	36	5.2
23...	1400	59	268	20.5	6	26	4.1
26...	1415	75	257	17.9	6	30	6.1
30...	1530	69	285	20.3	6	29	5.4
SEP							
03...	1015	43	230	16.7	6	25	2.9
08...	0945	45	220	14.0	7	20	2.4
09...	1415	44	260	17.2	10	20	2.4
15...	1345	108	230	15.3	6	36	10
17...	1230	108	265	16.1	4	38	11
20...	1800	106	248	--	4	22	6.3
23...	1440	115	260	18.0	4	21	6.5
28...	1110	124	255	16.3	5	23	7.9

12507560 COULEE DRAIN AT NORTH SATUS ROAD, NEAR SATUS, WA

LOCATION.--Lat 46°17'49", long 120°08'42", in SW¼NW¼ sec.1, T.9 N., R.21 E., Yakima County, Hydrologic Unit 17030003, 1.9 mi (3.1 km) north of Satus.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
MAR , 1975							
02...	1425	1.0	340	7.0	--	7	.02
17...	0915	1.0	360	5.0	2	27	.07
19...	1350	1.0	360	7.0	2	13	.04
APR							
02...	1400	1.0	350	10.0	0	11	.03
03...	1355	1.0	370	8.0	1	13	.04
07...	1355	1.0	350	9.5	3	11	.03
09...	1425	1.0	360	9.5	1	7	.02
14...	1425	1.0	360	9.0	1	30	.08
22...	1440	3.0	350	16.0	4	19	.15
29...	1415	14	340	15.0	20	105	4.0
30...	1355	13	340	16.0	20	130	4.6
MAY							
06...	1435	13	330	16.0	4	52	1.8
07...	1905	13	335	14.0	7	58	2.0
15...	1520	51	320	17.0	8	59	8.1
16...	1935	19	320	17.0	10	48	2.5
24...	1505	19	300	17.0	10	50	2.6
25...	1435	18	300	18.0	10	57	2.8
31...	1520	20	340	18.0	20	59	3.2
JUN							
04...	1120	19	535	19.0	20	62	3.0
05...	1545	18	325	20.0	20	68	3.3
11...	1845	17	320	21.0	--	39	1.8
13...	1535	18	355	19.0	7	42	2.0
20...	1100	21	340	18.0	9	58	3.3
21...	1540	21	350	18.0	10	27	1.5
25...	1030	27	335	18.0	8	41	3.0
27...	1030	27	340	16.0	9	32	2.3
JUL							
02...	1030	33	335	19.0	8	24	2.1
04...	1030	31	370	18.0	7	19	1.6
09...	1045	35	380	19.0	7	27	2.6
12...	1730	36	380	19.0	20	30	2.9
16...	1530	38	370	19.0	5	26	2.7
18...	1445	38	350	19.4	5	21	2.2
23...	1245	39	375	20.1	9	39	4.1
29...	1445	39	350	19.8	5	14	1.5
AUG							
01...	1615	35	360	20.2	5	72	6.8
05...	1500	31	350	21.2	6	21	1.8
13...	1810	21	350	20.5	--	21	1.2
18...	1315	27	340	19.8	3	16	1.2
20...	1530	22	350	21.0	2	23	1.4
27...	0930	24	350	19.6	2	25	1.6
SEP							
04...	1230	23	350	19.0	1	13	.81
09...	1615	21	380	20.9	1	22	1.2
16...	1335	23	360	18.4	--	11	.68
23...	1535	19	350	18.7	--	20	1.0
APR , 1976							
05...	1210	1.0	370	17.8	4	17	.05
08...	1420	2.0	218	12.7	10	29	.16
12...	1500	3.0	390	15.0	5	11	.09
15...	1245	5.0	365	13.4	3	53	.72
20...	1230	9.0	365	15.0	4	90	2.2
26...	1345	13	330	14.0	3	93	3.3
29...	1230	14	330	15.7	4	77	2.9
MAY							
04...	1145	15	333	15.2	3	76	3.1
06...	1120	18	313	15.0	3	59	2.9
20...	1200	27	258	15.9	4	62	4.5
25...	1130	29	295	13.8	4	47	3.7
28...	1015	28	315	13.4	4	37	2.8
JUN							
02...	1130	28	298	15.5	3	56	4.2
03...	1330	28	318	17.6	2	53	4.0
07...	1215	28	305	17.7	3	62	4.7
11...	1100	29	260	15.3	6	60	4.7
15...	1300	29	325	17.0	15	90	7.0
18...	1015	29	255	16.1	6	75	5.9
21...	1205	30	330	18.3	7	67	5.4
25...	1200	30	307	16.2	4	41	3.3
29...	1000	30	315	17.3	6	39	3.2
JUL							
01...	1500	30	285	18.0	5	55	4.5
07...	1100	30	217	17.2	5	38	3.1
08...	1500	30	315	20.8	4	39	3.2
13...	1505	31	305	20.4	4	40	3.3
15...	1335	31	305	19.8	4	36	3.0

12507560 COULEE DRAIN AT NORTH SATUS ROAD, NEAR SATUS, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUL , 1976							
20...	1100	31	277	18.6	8	30	2.5
23...	1000	30	250	18.0	8	37	3.0
27...	1115	30	325	17.4	8	33	2.7
30...	1030	30	320	18.4	2	35	2.8
AUG							
02...	1345	30	295	19.2	6	33	2.7
05...	1315	29	317	19.2	4	29	2.3
09...	1540	29	325	20.6	5	31	2.4
17...	1030	27	325	10.5	3	16	1.2
19...	1245	27	330	17.0	3	18	1.3
23...	1330	29	330	19.8	3	20	1.6
26...	1345	29	335	17.9	3	16	1.3
30...	1500	28	355	20.2	4	26	2.0
SEP							
03...	1045	28	260	16.7	4	20	1.5
08...	1015	27	270	14.8	3	12	.87
09...	1400	25	325	17.9	4	18	1.2
14...	1415	21	285	16.3	4	14	.79
17...	1215	21	325	16.6	5	19	1.1
20...	1730	18	320	--	4	20	.97
23...	1430	17	322	19.0	5	25	1.1
28...	1145	15	322	17.2	5	20	.81

12508596 SATUS CREEK AT PLANK ROAD NEAR SATUS, WA

LOCATION.--Lat 46°17'25", long 120°13'12", in SE¼SW¼ sec.5, T.9 N., R.21 E., Yakima County, Hydrologic Unit 17030003, 3.5 mi (5.6 km) southwest of Granger.

DRAINAGE AREA.--560 mi^2 (1,450 km^2).

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
11...	1140	480	109	5.5	4	40	52
14...	1340	350	--	6.0	3	36	34
19...	1230	670	77	6.0	8	81	147
21...	1350	520	110	4.5	--	13	18
25...	1400	490	940	6.0	3	28	37
27...	1340	190	120	4.5	2	18	9.2
31...	1530	160	118	7.0	3	13	5.6
APR							
03...	1325	140	128	6.0	2	24	9.1
07...	1325	62	140	8.0	1	16	2.7
09...	1355	56	150	9.0	1	43	6.5
14...	1400	150	118	7.0	3	18	7.3
22...	1410	77	125	11.0	2	46	9.6
24...	1415	45	125	10.0	3	9	1.1
29...	1340	55	140	12.0	4	26	3.9
30...	1455	55	130	12.0	4	13	1.9
MAY							
06...	1400	55	140	13.0	4	50	7.4
07...	2000	55	165	15.0	5	30	4.5
15...	1600	100	125	16.0	3	34	9.2
16...	2025	69	125	15.0	3	29	5.4
24...	1415	54	130	15.0	8	32	4.7
25...	1500	46	165	17.0	5	23	2.9
31...	1435	150	175	18.0	10	55	22
JUN							
04...	1200	180	140	19.0	10	143	69
05...	1640	220	135	19.0	10	69	41
11...	1800	130	185	19.0	9	54	19
13...	1600	120	190	20.0	4	87	28
20...	1145	76	135	19.0	5	25	5.1
21...	1625	70	145	20.0	7	26	4.9
24...	1210	65	190	18.0	8	36	6.3
JUL							
01...	1215	48	165	18.0	6	21	2.7
03...	1215	48	170	20.0	7	14	1.8
08...	1515	69	185	20.0	9	55	10
11...	1515	67	155	20.0	8	59	11
17...	1035	57	160	19.0	--	17	2.6
18...	1435	37	208	22.1	--	22	2.2
21...	1145	55	175	22.3	3	31	4.6

12508590 SATUS CREEK AT PLANK ROAD NEAR SATUS, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUL , 1975							
23...	1145	52	190	22.3	55	29	4.1
25...	1330	52	190	21.3	25	17	2.4
29...	1400	51	215	14.0	5	32	4.4
AUG							
01...	1530	52	210	22.2	4	886	124
05...	1415	48	200	24.2	45	19	2.5
13...	1645	36	240	24.7	2	11	1.1
20...	1620	52	220	22.7	3	28	3.9
27...	1300	53	220	20.4	1	26	3.7
SEP							
04...	1040	66	240	15.6	2	21	3.7
10...	1245	62	260	19.0	1	20	3.3
17...	1350	63	270	17.2	2	19	3.2
22...	1650	63	260	17.7	2	18	3.1
OCT							
22...	0935	52	185	8.8	1	48	6.7
MAR , 1976							
03...	1320	130	109	2.0	3	3	1.1
10...	1210	170	150	7.6	3	22	10
17...	--	310	109	8.3	11	93	78
22...	1405	260	100	6.7	11	32	22
25...	1215	460	95	6.0	26	82	102
30...	1515	450	110	9.7	6	14	17
APR							
01...	1115	230	94	6.1	6	34	21
05...	1235	240	88	10.6	6	43	28
09...	1310	380	84	10.0	7	38	39
13...	1115	310	89	8.7	4	20	17
15...	1310	210	94	8.4	4	12	6.8
20...	1720	100	103	12.3	3	21	5.7
23...	1045	48	132	9.7	2	8	1.0
27...	0910	43	185	10.4	2	16	1.9
29...	1320	100	110	13.8	2	22	5.9
MAY							
04...	1115	110	102	13.0	2	17	5.0
06...	1210	100	79	13.7	2	17	4.6
11...	1045	130	87	12.2	2	24	8.4
14...	0900	160	108	13.6	4	36	16
20...	1215	110	157	13.6	3	19	5.6
25...	0930	66	205	12.0	4	27	4.8
28...	0940	64	205	11.8	6	32	5.5
JUN							
02...	1100	52	233	14.4	6	23	3.2
03...	1345	51	250	16.7	4	38	5.2
07...	1245	45	260	19.6	3	35	4.3
11...	1045	44	300	16.3	6	35	4.2
15...	1300	40	365	17.4	3	41	4.4
18...	1015	39	364	18.5	3	21	2.2
21...	1300	39	350	19.2	2	22	2.3
25...	1145	39	355	16.3	3	17	1.8
29...	0945	42	390	19.7	5	23	2.6
JUL							
02...	0915	68	130	15.8	4	52	9.5
07...	1030	61	148	19.2	6	45	7.4
08...	1515	60	135	22.0	3	51	8.3
13...	1445	42	162	20.8	5	43	4.9
16...	1010	58	178	20.7	4	35	5.5
20...	1045	50	180	21.0	12	60	8.1
23...	0945	48	135	21.4	5	21	2.7
27...	1100	46	173	20.1	5	19	2.4
30...	1000	46	175	21.6	6	9	1.1
AUG							
03...	0830	49	152	20.6	5	26	3.4
05...	1345	48	170	23.1	5	22	2.9
09...	1600	50	165	23.6	2	17	2.3
17...	1115	54	190	17.1	3	17	2.5
19...	1300	52	208	18.4	3	18	2.5
23...	1345	50	215	22.1	3	20	2.7
26...	1400	49	220	19.5	6	23	3.0
30...	1515	38	230	22.7	5	31	3.2
SEP							
03...	1030	48	520	17.8	4	21	2.7
08...	1000	45	265	14.6	4	17	2.1
14...	1400	42	235	15.9	5	18	2.0
17...	1430	46	220	18.5	4	48	6.0
21...	1000	48	275	--	3	19	2.5
23...	1715	48	280	20.8	3	19	2.5
28...	1130	49	245	17.3	4	19	2.5

12508610 SATUS CREEK AT NORTH SATUS ROAD AT SATUS, WA

LOCATION.--Lat 46°16'23", long 120°08'44", in NW¼NW¼ sec.13, T.9 N., R.21 E., Yakima County, Hydrologic Unit 17030003, 0.2 mi (0.3 km) northeast of Satus.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
01...	1000	621	132	6.5	--	42	70
02...	1510	651	133	4.5	--	30	53
11...	1315	338	133	6.5	5	40	37
19...	1430	429	110	5.0	10	107	124
25...	1510	320	127	6.5	3	42	36
27...	1440	228	184	6.0	1	37	23
APR							
02...	1430	202	215	8.5	1	32	17
03...	1420	206	225	8.0	3	44	24
07...	1410	151	250	8.5	4	29	12
09...	1450	133	285	11.0	2	93	33
14...	1445	200	183	9.0	1	34	18
24...	1500	172	260	12.0	--	66	31
29...	1430	155	285	15.0	--	108	45
30...	1325	122	270	16.0	--	115	38
MAY							
06...	1950	266	260	15.0	6	117	84
07...	1840	226	275	15.0	8	109	67
15...	1535	192	300	18.0	7	71	37
16...	1910	188	295	17.0	9	73	37
25...	1410	107	310	17.0	10	78	23
25...	1440	107	330	17.0	10	60	17
31...	1500	228	310	20.0	20	102	63
JUN							
04...	1135	252	215	19.0	--	126	86
05...	1525	266	270	19.0	20	86	62
11...	1825	214	330	19.0	10	71	41
13...	1510	184	340	18.0	9	65	33
20...	1120	168	320	17.0	8	49	22
21...	1525	160	320	19.0	10	51	22
25...	1045	162	320	18.0	9	8[illegible]	36
27...	1045	155	340	16.0	8	42	18
JUL							
02...	1045	135	350	18.0	10	79	29
04...	1050	155	350	18.0	20	97	41
09...	1105	164	360	19.0	10	68	30
12...	1655	160	360	19.0	20	126	54
16...	1500	138	360	18.0	10	70	26
18...	1435	137	340	19.1	10	59	22
23...	1220	126	340	21.6	7	38	13
29...	1430	104	380	18.6	6	22	6.2
AUG							
01...	1600	119	360	20.6	7	25	8.0
05...	1445	114	360	20.8	7	53	16
08...	1300	109	340	19.4	--	41	12
13...	1755	109	350	21.6	3	35	10
18...	1145	133	350	19.4	4	411	148
20...	1510	124	340	20.2	2	66	22
26...	0900	128	350	17.0	2	54	19
SEP							
02...	1615	178	330	18.7	2	38	18
09...	1555	168	350	19.5	1	36	16
16...	1305	149	350	17.6	1	28	11
23...	1515	126	350	18.0	1	27	9.2
OCT							
22...	0910	274	290	9.2	2	16	12
MAR , 1976							
03...	1505	160	130	3.4	4	15	6.5
09...	1435	144	108	11.0	3	14	5.4
17...	1305	264	100	8.4	20	116	83
22...	1340	278	111	6.9	14	45	34
25...	1155	556	102	5.4	32	151	227
30...	1445	216	151	10.4	8	30	17
APR							
01...	1100	318	128	6.4	7	105	90
05...	1200	322	96	10.5	5	55	48
08...	1410	385	99	9.0	5	30	31
12...	1450	418	112	9.7	5	36	41
15...	1235	335	170	9.9	6	95	86
20...	1220	220	243	14.1	6	273	162
23...	1145	184	285	12.2	6	208	103
26...	1340	168	241	12.8	5	196	89
29...	1215	234	228	14.6	6	163	90
MAY							
04...	1130	250	269	15.5	6	173	117
06...	1110	236	240	13.5	5	134	85
11...	1100	270	228	14.8	6	194	141
14...	0915	294	232	14.6	7	133	106
20...	1145	252	265	14.6	7	146	99
25...	1115	226	305	13.2	6	136	83

12508610 SATUS CREEK AT NORTH SATUS ROAD AT SATUS, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAY , 1976							
28...	1005	200	325	13.1	6	60	32
JUN							
02...	1115	162	295	14.4	6	102	45
03...	1315	151	300	16.0	4	95	39
07...	1200	126	305	17.3	4	127	43
11...	1115	125	345	15.4	7	91	31
15...	1315	117	330	16.3	5	87	27
18...	1030	104	335	17.4	5	124	35
21...	1155	107	340	17.6	4	84	24
25...	1215	85	350	16.0	4	46	11
29...	1015	99	355	16.8	4	39	10
JUL							
01...	1445	151	195	17.0	3	50	20
07...	1045	166	270	18.5	6	81	36
08...	1445	168	233	21.5	4	53	24
13...	1520	176	290	20.4	4	102	48
15...	1325	162	290	20.5	4	83	36
20...	1115	124	225	19.1	10	56	19
23...	1015	105	280	18.5	8	81	23
27...	1130	90	335	18.2	7	49	12
30...	1045	100	310	17.9	8	65	18
AUG							
02...	1335	107	295	19.3	5	47	14
05...	1300	104	305	19.2	5	45	13
09...	1530	144	300	20.6	6	75	29
17...	1015	151	310	16.1	3	39	16
19...	1230	142	328	17.1	4	44	17
23...	1315	138	315	19.7	4	42	16
26...	1330	142	325	17.6	5	36	14
30...	1445	156	355	19.8	5	44	19
SEP							
03...	1045	147	270	17.0	4	37	15
08...	1030	142	285	14.8	5	43	16
09...	1345	146	325	17.0	4	26	10
14...	1430	122	280	15.8	5	89	29
17...	1200	129	325	16.0	4	20	7.0
20...	1715	124	310	--	6	47	16
23...	1415	126	355	17.8	3	21	7.1
28...	1200	115	345	16.5	5	20	6.2

12508630 SOUTH DRAIN NEAR SATUS, WA

LOCATION.--Lat 46°15'35", long 120°07'57", in SW¼SE¼ sec.13, T.9 N., R.21 E., Yakima County, Hydrologic Unit 17030003, at State Highway 22, 1.1 mi (1.8 km) southeast of Satus.

PERIOD OF RECORD.--Water years 1974, March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
11...	1345	12	850	11.5	2	95	3.1
12...	1015	12	860	9.0	--	31	1.0
20...	0845	10	900	6.5	2	25	.67
21...	0900	9.0	875	8.5	2	56	1.4
24...	0920	10	950	5.5	3	68	1.8
26...	0900	9.0	860	7.0	2	13	.32
APR							
01...	0845	51	290	7.0	8	56	7.7
04...	0840	55	276	6.5	4	49	7.3
08...	0840	76	223	8.0	2	54	11
10...	0840	71	236	8.5	2	41	7.9
15...	0900	65	260	8.5	5	24	4.2
21...	0845	75	250	9.0	--	59	12
23...	0855	66	280	10.0	20	97	17
30...	1255	83	280	13.0	10	51	11
MAY							
01...	1510	65	330	14.0	10	49	8.7
07...	1815	78	360	16.0	10	72	15
08...	1535	87	300	16.0	20	96	23
16...	1840	105	280	17.0	10	146	41
18...	0935	117	275	14.0	20	184	58
25...	1340	104	300	15.0	30	154	43
31...	2115	109	330	21.0	20	135	39
JUN							
01...	0920	117	350	19.0	20	171	54
05...	1455	111	310	21.0	20	144	43
06...	1130	39	320	18.0	60	175	18
13...	1440	119	340	19.0	10	143	46
16...	1135	119	300	17.0	10	119	38
21...	1500	110	360	19.0	20	107	32
23...	1130	110	340	18.0	20	120	36
25...	1110	108	340	18.0	20	144	42
27...	1115	104	285	15.0	20	119	33
JUL							
02...	1115	119	340	19.0	20	122	39
04...	1115	111	360	19.0	20	135	40
09...	1130	87	440	20.0	20	212	50
12...	1630	79	460	20.0	30	184	39
16...	1425	90	440	19.0	30	144	35
18...	1410	99	410	19.6	20	134	36
22...	1700	89	400	23.1	20	127	31
31...	1730	83	420	21.4	20	75	17
AUG							
04...	1700	93	400	22.8	20	71	18
13...	1735	100	410	21.6	8	86	23
18...	1220	124	430	19.3	16	204	68
20...	1445	109	360	21.2	10	231	68
27...	0845	128	380	18.1	6	138	48
28...	1715	93	370	22.6	--	93	23
SEP							
02...	1550	123	360	18.6	4	76	25
09...	1535	109	360	20.4	3	114	34
17...	1325	109	370	17.0	4	47	14
23...	1500	97	--	17.8	3	141	37
OCT							
22...	0900	16	900	9.6	0	10	.43
MAR , 1976							
02...	1600	9.0	810	8.2	2	10	.24
09...	1425	9.0	720	11.0	2	18	.44
16...	1605	9.0	780	12.6	4	27	.66
22...	1325	9.0	890	10.3	4	36	.87
25...	1135	7.0	940	9.4	4	12	.23
30...	1500	119	128	--	21	139	45
APR							
01...	1045	99	151	7.4	12	173	46
05...	1145	95	152	12.9	5	137	35
08...	1400	92	158	10.0	6	78	19
12...	1435	59	275	12.1	7	106	17
15...	1225	56	255	9.8	9	95	14
20...	1205	64	210	13.2	7	188	32
23...	1215	58	293	11.5	8	65	10
26...	1325	45	315	11.2	7	94	11
29...	1205	56	319	13.8	20	219	33
MAY							
04...	1200	58	373	14.9	8	126	20
06...	1100	67	295	13.5	12	159	29
11...	1115	69	312	13.6	10	116	22
14...	0945	96	258	14.6	10	129	33
20...	1130	92	295	13.8	13	119	30
25...	1145	89	275	12.9	7	178	43

12508630 SOUTH DRAIN NEAR SATUS, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
MAY , 1976							
28...	1035	86	320	12.6	11	153	36
JUN							
02...	1145	81	323	13.7	10	125	27
04...	0945	86	375	13.1	7	148	34
07...	1145	78	280	17.5	6	130	27
11...	1115	68	405	15.7	14	123	23
15...	1330	74	380	17.5	10	126	25
18...	1045	70	370	18.2	7	95	18
21...	1145	69	370	18.7	6	104	19
25...	1230	96	300	16.7	11	118	31
29...	1030	82	330	19.6	8	96	21
JUL							
02...	0930	100	365	15.5	10	128	35
07...	1115	95	365	19.0	11	140	36
09...	1030	105	335	18.6	15	195	55
13...	1530	96	368	20.4	15	189	49
15...	1310	93	365	21.0	16	275	69
20...	1130	92	265	20.6	26	147	37
23...	1030	108	365	19.8	35	205	60
27...	1130	92	335	19.3	28	160	40
30...	1100	92	350	22.0	20	250	62
AUG							
02...	1320	92	270	19.9	20	203	50
05...	1245	103	355	21.0	14	203	56
09...	1520	110	355	21.5	12	179	53
16...	1615	95	305	18.0	14	87	22
19...	1215	108	375	17.0	16	181	53
23...	1300	100	372	20.0	9	172	46
26...	1315	100	305	17.5	12	160	43
30...	1430	97	420	20.5	10	131	34
SEP							
03...	1100	112	375	17.5	6	120	36
08...	1045	154	265	16.0	10	87	36
10...	0915	149	355	16.6	10	129	52
14...	1445	91	285	16.0	7	144	35
17...	1445	80	405	17.3	5	40	8.6
21...	1015	85	395	--	4	49	11
23...	1730	86	400	19.0	4	49	11
28...	1245	96	385	17.2	5	86	22

12508660 SATUS DRAIN 302 AT HIGHWAY 22 NEAR MABTON, WA

LOCATION.--46°13'32", long 120°05'14", in SE¼NW¼ sec.34, T.9 N., R.22 E., Yakima County, Hydrologic Unit 17030003, 2.7 mi (4.3 km) west of Mabton.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
MAR , 1975							
11...	1410	1.0	--	9.0	1	18	.05
17...	1100	1.0	1520	6.5	1	65	.18
20...	0910	1.0	1625	4.0	1	45	.12
26...	0925	1.0	1690	3.5	1	2	.01
APR							
01...	0905	1.0	1625	4.5	1	21	.06
04...	0905	12	185	6.0	20	329	11
08...	0905	14	170	6.5	--	152	5.7
10...	0910	14	165	7.0	2	60	2.3
15...	0920	5.0	250	9.0	30	140	1.9
21...	0910	8.0	180	8.0	--	339	7.3
23...	0920	10	200	10.0	30	227	6.1
30...	1225	12	245	12.0	40	493	16
MAY							
01...	1450	12	230	15.0	50	362	12
07...	1745	17	240	15.0	20	314	14
08...	1555	21	220	16.0	30	1060	60
16...	1020	23	210	19.0	30	296	18
19...	0955	21	210	15.0	30	425	24
25...	1320	28	200	17.0	40	830	63
31...	2050	30	320	21.0	40	922	75
JUN							
01...	0945	25	295	19.0	50	808	55
05...	1435	25	250	21.0	50	592	40
06...	1155	23	190	19.0	50	671	42
13...	1420	28	280	19.0	30	455	34
16...	1200	32	270	17.0	20	395	34
21...	1435	27	300	21.0	40	290	21
23...	1200	27	275	18.0	30	236	17
25...	1140	28	205	17.0	40	946	72
27...	1145	33	250	16.0	30	494	44
JUL							
02...	1205	3.0	290	18.0	30	232	1.9
06...	1145	4.0	300	20.0	30	209	2.3
09...	1200	32	330	21.0	40	582	50
12...	1600	34	330	21.0	40	572	53
16...	1400	31	325	19.0	50	497	42
18...	1345	36	300	20.5	50	744	72
22...	1630	30	315	24.0	45	525	43
28...	1645	32	320	25.0	25	480	41
31...	1700	30	330	22.0	50	302	24
AUG							
04...	1630	37	315	23.0	30	251	25
14...	1050	42	330	18.4	14	202	23
20...	1340	46	340	21.0	8	101	13
26...	1600	42	350	20.4	6	676	77
SEP							
02...	1530	45	320	18.0	6	61	7.4
09...	1515	42	340	20.1	2	57	6.5
17...	1305	34	350	16.5	5	107	9.8
23...	1445	24	330	16.0	2	63	4.1
MAR , 1976							
02...	1535	1.0	1600	4.2	8	27	.07
09...	1405	1.0	1110	10.1	10	51	.14
16...	1550	1.0	1650	11.6	10	36	.10
22...	1310	1.0	1400	8.8	31	90	.24
APR							
05...	1130	10	115	11.4	12	1360	37
08...	1340	6.0	104	10.4	10	233	3.8
12...	1420	5.0	160	12.4	20	210	2.8
15...	1210	15	137	9.4	13	1140	46
20...	1150	13	146	13.0	11	1310	46
23...	1215	17	142	11.8	23	808	37
26...	1310	17	155	12.2	25	1370	63
29...	1150	19	201	14.3	24	1850	95
MAY							
04...	1215	26	220	16.1	24	1561	110
06...	1045	28	202	14.8	18	818	62
11...	1130	26	203	14.8	16	1170	82
14...	1000	21	226	13.0	49	2730	155
20...	1115	28	227	14.6	22	1740	132
25...	1200	34	245	13.8	28	2320	213
28...	1045	38	237	13.5	26	2050	210
JUN							
02...	1200	40	255	14.6	29	1330	144
04...	1000	40	285	12.8	29	1060	114
07...	1130	37	275	18.2	17	1140	114
11...	1130	38	167	16.5	29	1080	111
15...	1345	36	290	18.1	24	--	--
18...	1100	36	210	18.2	24	880	86

12508660 SATUS DRAIN 302 AT HIGHWAY 22 NEAR MABTON, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
JUN , 1976							
21...	1125	35	280	19.2	13	1420	134
25...	1245	29	317	18.3	18	533	42
29...	1045	25	285	19.2	27	591	40
JUL							
02...	0945	27	333	14.3	25	639	47
07...	1115	30	325	19.4	17	580	47
09...	1100	31	333	18.3	14	512	43
12...	1500	32	325	22.0	23	610	53
15...	1255	33	303	21.3	30	518	46
20...	1145	30	245	20.0	100	596	48
23...	1045	36	300	19.2	40	824	80
27...	1145	38	327	19.4	106	793	81
30...	1115	40	305	19.9	65	671	72
AUG							
02...	1300	40	331	21.0	56	548	59
05...	1230	40	315	19.8	39	456	49
09...	1505	42	325	21.0	22	376	42
16...	1600	45	315	18.4	22	294	36
19...	1200	45	330	16.2	18	267	32
23...	1245	39	332	19.4	14	262	28
26...	1300	40	320	16.6	11	153	17
30...	1415	39	290	19.7	12	167	18
SEP							
03...	1115	40	310	17.3	13	153	17
08...	1100	18	280	12.2	22	152	7.4
10...	0930	18	355	13.2	21	137	6.7
14...	1500	14	335	15.5	10	--	--
17...	1500	18	370	16.9	8	75	3.6
21...	1030	18	340	--	12	103	5.0
23...	1745	24	375	19.0	9	93	6.0
28...	1300	27	365	16.3	10	168	12

12508690 SATUS DRAIN 303 AT LOONEY ROAD NEAR MABTON, WA

LOCATION.--Lat 46°12'57", long 120°02'02", in NW¼SW¼ sec.2, T.8 N., R.22 E., Yakima County, Hydrologic Unit 17030003, 1.5 mi (2.4 km) west of Mabton.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
MAR , 1975							
11...	1430	1.0	--	13.5	0	143	.39
17...	1115	1.0	1650	--	1	48	.13
20...	0935	1.0	1690	7.0	1	22	.06
24...	0940	1.0	1500	8.5	0	16	.04
26...	0950	1.0	1150	6.5	1	82	.22
APR							
01...	0920	29	175	6.5	0	52	4.1
04...	0925	34	136	6.5	6	1430	131
08...	0925	30	144	8.0	7	1050	85
10...	0925	29	143	8.5	5	299	23
15...	0940	22	160	10.0	5	160	9.5
21...	0930	34	130	10.0	--	865	79
23...	0940	28	145	10.0	30	556	42
30...	1220	15	250	14.0	30	154	6.2
MAY							
01...	1425	16	340	17.0	20	83	3.6
07...	1735	22	230	15.0	10	718	43
08...	1615	22	230	15.0	20	195	12
16...	1805	32	165	18.0	30	335	29
18...	1015	30	200	16.0	30	583	47
25...	1305	25	300	17.0	50	624	42
31...	2035	28	300	19.0	40	434	33
JUN							
01...	1000	22	290	18.0	30	419	25
05...	1420	22	300	19.0	40	848	50
06...	1215	20	320	20.0	30	234	13
13...	1400	20	360	19.0	30	310	17
16...	1415	20	355	18.0	20	2250	121
21...	1415	24	370	19.0	20	242	16
23...	1215	25	340	20.0	20	228	15
25...	1200	24	350	19.0	40	325	21
27...	1205	27	330	17.0	30	247	18
JUL							
02...	1220	30	350	18.0	30	432	35
04...	1200	29	350	20.0	20	184	14
09...	1215	10	500	20.0	30	518	14
12...	1545	9.0	440	21.0	40	411	10
16...	1345	30	390	20.0	--	837	68
18...	1335	29	360	21.2	10	450	35
22...	1615	24	300	24.1	35	356	23

12508690 SATUS DRAIN 303 AT LOONEY ROAD NEAR MABTON, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
JUL , 1975							
28...	1630	26	365	25.3	20	195	14
31...	1645	29	375	22.0	35	235	18
AUG							
04...	1615	29	370	23.4	45	184	14
14...	1105	16	390	19.8	12	877	38
20...	1415	19	320	21.8	9	75	3.8
26...	1530	26	350	21.0	6	106	7.3
SEP							
02...	1510	32	340	19.0	4	89	7.7
09...	1500	35	350	21.0	2	103	10
17...	1250	19	420	17.8	6	82	4.2
23...	1430	28	380	17.8	5	65	4.9
OCT							
22...	0830	1.0	1550	10.4	1	19	.05
MAR , 1976							
02...	1515	1.0	1700	10.2	1	16	.04
09...	1350	1.0	1390	13.0	1	25	.07
16...	1535	1.0	1750	12.7	1	29	.08
22...	1255	1.0	1750	10.4	1	21	.06
25...	1110	1.0	1750	10.2	2	11	.03
30...	1415	1.0	1275	14.2	2	2	.01
APR							
01...	1030	1.0	123	8.0	32	3540	9.6
05...	1120	25	120	12.3	12	1000	67
08...	1330	15	114	11.1	16	714	29
12...	1410	15	170	--	33	4290	174
15...	1200	28	135	9.1	11	721	55
20...	1140	8.0	325	15.4	23	812	18
23...	1230	20	181	11.7	18	916	49
26...	1300	24	149	12.2	8	399	26
29...	1440	26	180	14.0	9	358	25
MAY							
04...	1230	15	289	17.5	12	156	6.3
06...	1035	17	296	15.4	16	273	13
11...	1145	21	282	11.0	12	296	17
14...	1015	14	218	15.8	24	599	23
20...	1100	20	277	15.9	14	362	20
25...	1215	1.0	424	15.7	13	156	.42
28...	1100	16	313	14.9	28	747	32
JUN							
02...	1215	37	247	16.2	21	753	75
04...	1015	42	257	16.3	30	1050	119
07...	1115	28	280	19.0	15	283	21
11...	1145	29	300	17.6	40	330	26
15...	1400	47	260	18.0	20	426	54
18...	1115	46	255	19.4	18	283	35
21...	1115	55	260	19.9	10	422	63
25...	1300	34	281	18.7	17	320	29
29...	1045	42	275	20.0	16	432	49
JUL							
02...	1000	24	315	15.6	27	600	39
07...	1130	28	330	19.9	15	237	18
09...	1045	31	315	19.4	21	268	22
12...	1450	34	300	21.4	12	230	21
15...	1245	20	320	22.3	28	113	6.1
20...	1145	32	255	21.5	33	250	22
23...	1100	24	312	19.6	32	369	24
26...	1200	20	360	21.1	28	201	11
30...	1130	20	345	21.8	20	132	7.1
AUG							
02...	1245	20	350	20.8	32	152	8.2
05...	1215	20	305	21.8	24	175	9.4
09...	1450	24	315	22.3	17	191	12
16...	1545	32	320	18.9	24	218	19
19...	1145	28	340	17.0	17	122	9.2
23...	1230	28	327	20.3	13	70	5.3
26...	1245	32	325	18.7	16	112	9.7
30...	1400	37	290	21.0	14	98	9.8
SEP							
03...	1115	32	300	18.5	11	195	17
08...	1100	3.0	480	15.0	11	61	.49
10...	0945	2.0	500	14.1	15	52	.28
14...	1515	8.0	355	16.1	8	152	3.3
17...	1500	8.0	445	18.1	12	47	1.0
21...	1045	6.0	485	--	16	311	5.0
23...	1800	8.0	650	19.8	29	68	1.5
28...	1315	8.0	445	19.1	9	63	1.4

12508790 DID 18 DRAIN AT SUNNYSIDE, WA

LOCATION.--Lat 46°19'29", long 119°58'38", in SW¼NW¼, sec.29, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on left bank 40 ft (12 m) upstream from State Highway 241 culvert crossing, 100 ft (30 m) upstream from mouth (on Sulphur Creek wasteway), and 1.0 mi (1.6 km) east of Sunnyside.

DRAINAGE AREA.--14.7 mi² (38.1 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1976 to March 1977 (discontinued).

GAGE.--Water-stage recorder. Datum of gage 740 ft (226 m) from topographic map.

REMARKS.--Water-discharge record good. Regulation from agricultural return flow.

EXTREMES FOR PERIOD OF RECORD.-- Maximum discharge, 26 ft³/s (0.74 m³/s) Aug. 1, 1976, gage height, 3.46 ft (1.055 m); minimum, 1.7 ft³/s (0.048 m³/s) Mar. 19, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1976 to March 1977, 22 ft³/s (0.62 m³/s) Oct. 5, gage height, 3.36 ft (1.024 m); minimum, 1.7 ft³/s (0.048 m³/s) Mar. 19.

DISCHARGE, IN CUBIC FEET PER SECOND OCTOBER 1976 TO MARCH 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	9.9	7.8	6.8	5.8	4.5						
2	17	9.7	7.8	6.8	5.7	4.5						
3	17	9.5	7.8	6.6	5.8	4.8						
4	17	9.5	7.8	6.5	5.7	4.8						
5	18	10	7.8	6.3	5.8	4.8						
6	17	9.9	7.8	6.1	5.8	4.8						
7	18	9.7	8.0	6.1	5.5	4.9						
8	18	9.7	8.0	6.0	5.1	4.8						
9	18	9.7	7.6	6.0	4.9	4.3						
10	18	9.5	7.6	6.0	5.1	4.0						
11	18	9.5	7.6	6.1	4.9	4.3						
12	17	9.5	7.6	6.1	4.9	4.3						
13	17	9.3	7.4	6.1	4.8	4.4						
14	17	9.3	7.4	6.1	4.8	4.4						
15	17	9.2	7.4	6.0	4.9	4.5						
16	18	9.2	7.4	6.0	4.9	4.6						
17	17	9.0	7.4	6.0	4.9	3.3						
18	18	8.8	7.3	6.3	4.8	2.0						
19	18	8.8	7.1	6.1	4.8	2.2						
20	17	8.6	7.1	6.1	4.9	3.9						
21	15	8.6	7.1	6.1	4.9	4.0						
22	12	8.5	7.1	6.0	4.6	3.6						
23	11	8.6	7.1	6.0	4.5	3.2						
24	11	8.6	6.9	6.0	4.3	3.3						
25	11	8.5	7.1	6.0	4.3	3.7						
26	10	8.1	7.3	6.0	4.3	3.9						
27	10	8.1	6.9	6.0	4.3	3.7						
28	10	8.1	6.9	5.8	5.1	3.7						
29	10	8.0	6.9	6.0	---	3.7						
30	10	8.0	6.9	6.0	---	3.9						
31	10	---	6.8	5.8	---	3.7						
TOTAL	469	271.4	228.7	189.8	140.1	124.5						
MEAN	15.1	9.05	7.38	6.12	5.00	4.02						
MAX	18	10	8.0	6.8	5.8	4.9						
MIN	10	8.0	6.8	5.8	4.3	2.0						
AC-FT	930	538	454	376	278	247						

YAKIMA RIVER BASIN

12508790 DID 18 DRAIN AT SUNNYSIDE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1976 to March 1977 (discontinued).

WATER QUALITY DATA MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1976											
10...	1930	6.6	630	10.4	4	6.2	.62	6.8	.16	52	.93
23...	1835	7.6	790	10.6	31	--	--	--	--	103	2.1
26...	1715	7.4	700	11.7	40	--	--	--	--	232	4.6
29...	1640	8.0	570	14.0	35	--	--	--	--	162	3.5
APR											
01...	1205	9.6	662	10.6	52	--	--	--	--	656	17
05...	1620	9.0	615	10.3	40	6.5	2.7	9.2	1.0	2620	64
08...	1225	13	601	11.0	31	--	--	--	--	2000	70
12...	1205	13	560	12.2	30	--	--	--	--	1780	57
15...	1330	10	530	11.7	19	--	--	--	--	1400	40
19...	1225	11	600	15.6	21	4.7	3.0	7.7	1.2	1160	36
22...	1615	10	605	12.7	27	--	--	--	--	2500	72
27...	1225	12	560	13.7	25	--	--	--	--	1620	46
30...	1700	12	615	16.1	72	--	--	--	--	2140	64
MAY											
03...	1200	15	470	15.2	27	3.6	2.5	6.1	1.6	1750	71
07...	1000	16	460	12.6	73	--	--	--	--	2160	105
10...	1345	16	455	16.4	37	--	--	--	--	2000	86
13...	1230	14	416	19.0	30	--	--	--	--	1730	66
17...	1230	16	395	18.2	25	--	--	--	--	1280	60
21...	1000	14	451	12.4	47	3.2	2.3	5.5	1.1	1610	70
24...	1230	17	445	15.6	32	--	--	--	--	1540	71
27...	1120	16	445	16.1	33	--	--	--	--	2010	87
JUN											
01...	1705	15	385	16.1	38	3.8	2.5	6.3	1.6	1820	74
03...	1145	17	555	16.9	33	--	--	--	--	1670	77
08...	1055	15	500	16.9	18	4.0	1.2	5.2	.60	1080	46
08...	1215	16	520	16.6	19	--	--	--	--	1040	41
08...	1330	16	525	16.2	22	3.7	1.6	5.3	1.0	1250	47
08...	1445	13	525	16.5	26	--	--	--	--	1210	42
08...	1605	13	550	16.6	22	4.1	1.5	5.6	1.2	1260	46
08...	1815	13	530	16.5	26	--	--	--	--	1350	47
08...	1930	13	535	17.6	20	3.9	1.5	5.4	.66	1160	41
08...	2055	16	535	16.5	26	3.9	1.5	5.4	.60	1210	46
08...	2225	16	520	15.8	23	--	--	--	--	1200	45
09...	0015	15	530	16.9	24	3.6	1.6	5.2	.40	1190	48
09...	0145	15	530	16.2	25	--	--	--	--	1260	50
09...	0300	15	505	13.6	27	3.4	1.6	5.0	.66	1310	53
09...	0430	15	505	13.0	28	--	--	--	--	1360	55
09...	0605	15	505	12.5	31	3.9	1.3	5.2	1.1	1180	48
09...	0725	15	500	12.6	29	--	--	--	--	1150	47
09...	0900	15	500	13.6	30	3.5	1.1	4.6	.67	1120	45
09...	1040	16	500	15.9	30	--	--	--	--	1220	53
09...	1200	15	500	17.6	35	3.6	1.5	5.1	.66	1150	47
09...	1345	16	510	19.0	32	--	--	--	--	1130	43
09...	1515	16	520	21.2	18	3.8	1.9	5.7	.66	1070	40
09...	1640	13	520	21.6	20	--	--	--	--	1080	38
09...	1750	13	525	21.3	23	4.0	2.1	6.1	.65	1120	38
09...	1915	16	525	19.6	24	--	--	--	--	1040	41
09...	2115	16	510	17.5	27	3.8	2.0	5.8	.64	1160	43
09...	2240	15	510	16.6	26	--	--	--	--	1090	46
10...	0025	15	510	15.8	26	3.7	1.9	5.6	.61	1060	42
10...	0145	16	500	15.2	26	--	--	--	--	1120	48
10...	0310	16	500	14.8	24	3.6	1.9	5.5	.60	1170	51
10...	0430	15	485	13.9	27	--	--	--	--	1300	55
10...	0600	16	480	14.6	25	3.6	1.7	5.3	.67	1110	48
10...	0720	16	490	14.6	28	--	--	--	--	1100	48
10...	0850	16	490	14.5	28	3.6	1.6	5.2	.61	956	41
10...	1100	16	490	16.3	27	3.6	1.8	5.4	.65	981	42
14...	1205	16	460	17.6	22	--	--	--	--	1000	43
17...	1215	17	370	18.0	23	--	--	--	--	1160	53
21...	1515	16	530	20.2	32	3.5	1.3	4.8	.67	1000	43
24...	1200	19	455	17.2	37	--	--	--	--	1650	85
28...	1245	21	465	20.0	29	--	--	--	--	1300	74
JUL											
01...	1315	17	405	18.1	27	--	--	--	--	1300	60
06...	1200	17	405	20.0	30	3.4	1.7	5.1	1.6	1390	66
08...	1230	20	410	20.2	30	--	--	--	--	4030	218
12...	1225	22	410	18.5	23	--	--	--	--	2080	124
16...	1330	20	435	21.6	130	--	--	--	--	816	44
19...	1645	18	405	22.0	173	3.4	1.7	5.1	1.2	1050	51
22...	1600	18	475	22.0	151	--	--	--	--	769	37
26...	1645	20	365	23.2	80	--	--	--	--	671	36
29...	1200	22	450	18.7	61	--	--	--	--	602	41
AUG											
03...	1330	21	411	20.6	63	3.0	1.2	4.2	.60	718	41
06...	1220	23	435	17.7	77	--	--	--	--	671	42
10...	0905	23	470	15.6	66	--	--	--	--	606	43
18...	1010	22	470	16.4	65	2.9	.87	3.8	.36	675	40
18...	1110	22	470	17.4	80	--	--	--	--	696	41

12508790 DID 16 DRAIN AT SUNNYSIDE, WA--Continued

WATER QUALITY DATA MARCH 1976 TO MARCH 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
AUG , 1976											
10...	1215	22	470	18.6	71	3.0	1.2	4.2	.66	755	45
10...	1310	22	470	20.0	82	--	--	--	--	803	48
10...	1400	21	470	20.7	89	3.2	1.3	4.5	.73	747	42
10...	1520	20	475	21.0	79	--	--	--	--	692	37
10...	1620	20	480	22.0	107	3.3	1.2	4.5	.45	756	41
10...	1720	19	480	22.0	195	--	--	--	--	1020	52
10...	1815	19	485	21.3	205	3.4	2.0	5.4	1.1	1110	57
10...	1905	19	485	20.7	216	--	--	--	--	1080	55
10...	2000	19	485	20.0	184	3.4	1.6	5.0	.85	1100	56
10...	2115	19	480	19.7	151	--	--	--	--	1030	53
10...	2215	20	480	19.2	151	3.2	1.5	4.7	.85	961	52
10...	2315	20	475	17.6	130	--	--	--	--	970	52
11...	0015	20	470	17.1	130	2.8	1.3	4.1	.57	983	52
11...	0120	21	465	16.4	119	--	--	--	--	845	48
11...	0210	21	465	16.2	97	3.1	1.3	4.4	.81	843	48
11...	0305	21	460	15.8	72	--	--	--	--	881	50
11...	0415	22	455	15.7	76	3.1	.97	4.1	.76	841	50
11...	0500	22	455	15.5	79	--	--	--	--	813	48
11...	0620	22	455	15.0	69	3.2	.94	4.1	.74	747	44
11...	0700	22	450	15.2	67	--	--	--	--	726	43
11...	0800	22	450	15.4	91	3.0	1.0	4.0	.73	688	41
11...	0920	22	455	16.0	67	--	--	--	--	673	40
11...	1015	22	475	17.4	35	3.6	1.7	5.3	.77	681	40
11...	1100	22	455	17.5	50	--	--	--	--	621	37
11...	1200	21	475	18.5	43	3.0	.85	3.8	.50	640	36
11...	1300	25	470	20.0	97	--	--	--	--	1060	72
11...	1400	23	480	21.9	476	3.4	6.4	9.8	2.0	3900	242
11...	1530	20	475	20.6	249	--	--	--	--	3450	186
11...	1615	19	480	22.4	230	3.5	4.4	7.9	2.5	2900	149
11...	1700	19	475	22.4	250	--	--	--	--	3010	154
11...	1800	19	475	21.3	249	3.6	4.6	8.2	2.2	2820	145
11...	1900	18	480	20.4	249	--	--	--	--	2770	135
11...	1955	18	480	19.1	272	3.6	4.0	7.6	2.6	2800	136
11...	2100	19	480	18.7	250	--	--	--	--	2570	132
11...	2200	19	470	18.1	230	3.4	3.4	6.8	1.9	2870	147
11...	2300	20	465	17.4	227	--	--	--	--	2550	138
12...	0001	20	465	17.0	230	3.4	2.8	6.2	1.8	2890	156
12...	0100	20	465	16.6	216	--	--	--	--	2750	148
12...	0200	20	465	16.1	205	2.8	2.7	5.5	1.6	2830	153
12...	0305	21	465	16.0	195	--	--	--	--	2710	154
12...	0425	21	460	15.8	195	3.0	3.1	6.1	1.6	2900	164
12...	0500	21	465	15.5	195	--	--	--	--	2830	160
12...	0600	21	465	15.4	195	3.0	2.7	5.7	2.0	2860	162
12...	0700	21	450	15.4	162	--	--	--	--	2700	153
12...	0750	20	450	15.9	162	3.0	3.0	6.0	1.6	2680	150
16...	1415	22	435	17.6	84	--	--	--	--	1910	113
20...	1215	21	455	17.9	53	--	--	--	--	1230	70
26...	1245	20	485	18.3	35	--	--	--	--	1240	67
27...	1340	22	485	18.3	32	2.9	.66	3.6	.61	657	39
31...	1400	20	450	20.5	27	--	--	--	--	535	29
SEP											
02...	1345	19	450	14.1	21	--	--	--	--	466	24
07...	1400	21	375	17.0	26	2.9	1.0	3.9	.57	363	21
09...	1200	22	485	13.0	27	--	--	--	--	513	30
15...	1315	21	450	17.1	22	--	--	--	--	341	19
17...	1400	20	475	16.1	25	--	--	--	--	297	16
20...	1545	15	455	--	18	--	--	--	--	564	23
23...	1230	17	550	16.6	16	6.1	.81	6.9	.34	332	15
27...	1215	16	530	16.8	26	--	--	--	--	342	17
OCT											
01...	1145	16	575	14.6	40	--	--	--	--	343	15
04...	1015	17	575	15.5	62	4.3	.90	5.2	.56	494	23
08...	1100	16	580	13.1	38	--	--	--	--	1040	45
12...	1300	18	530	13.6	61	--	--	--	--	781	38
15...	1100	17	550	10.1	51	--	--	--	--	611	28
18...	1200	16	560	10.4	53	4.3	.62	4.9	.46	571	25
22...	1145	11	660	10.3	9	--	--	--	--	258	7.7
NOV											
03...	1545	9.5	777	11.5	10	5.8	.70	6.5	.26	220	5.6
08...	1230	9.0	777	12.0	8	--	--	--	--	250	6.1
11...	1400	9.3	702	12.5	8	--	--	--	--	325	8.2
15...	1200	9.2	685	10.1	10	--	--	--	--	238	5.9
22...	1300	8.5	715	8.0	10	--	--	--	--	243	5.6
29...	1140	8.1	677	8.1	10	--	--	--	--	304	6.6
30...	1205	8.0	720	4.6	6	7.4	.36	7.8	.15	122	2.6
DEC											
03...	1255	7.6	686	6.0	5	--	--	--	--	130	2.7
06...	0945	7.8	746	7.1	7	--	--	--	--	178	3.7
10...	1230	7.4	710	7.7	10	--	--	--	--	227	4.5

12508790 DID 18 DRAIN AT SUNNYSIDE, WA--Continued

WATER QUALITY DATA MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
DEC , 1976											
13...	1145	7.4	808	8.7	8	8.0	.42	8.4	.19	172	3.4
17...	1000	7.3	693	7.3	8	--	--	--	--	256	5.0
20...	1115	6.9	668	7.0	9	--	--	--	--	230	4.3
23...	0945	7.1	655	7.6	10	--	--	--	--	252	4.8
27...	1200	6.8	775	8.7	10	8.0	1.1	9.1	.27	245	4.5
30...	1300	6.9	699	8.0	9	--	--	--	--	161	3.0
JAN , 1977											
03...	1315	6.8	680	8.1	9	--	--	--	--	176	3.2
07...	1100	6.1	653	5.9	15	--	--	--	--	199	3.3
14...	1000	6.1	595	6.8	15	--	--	--	--	227	3.7
17...	1130	6.0	710	8.1	8	7.6	.59	8.2	.23	234	3.8
25...	1120	6.0	643	6.7	15	--	--	--	--	331	5.4
31...	1300	5.5	776	8.3	10	--	--	--	--	279	4.1
FEB											
08...	1505	5.0	770	10.5	15	7.2	1.3	8.5	.33	181	2.4
15...	1635	4.9	730	11.6	8	--	--	--	--	173	2.3
22...	1115	4.3	640	10.7	10	6.9	.60	7.5	.22	128	1.5
MAR											
07...	1055	4.9	748	10.3	10	--	--	--	--	168	2.2
11...	1330	4.3	780	13.8	15	--	--	--	--	351	4.1
14...	1215	4.6	695	10.4	10	--	--	--	--	263	3.3
18...	0945	2.0	594	10.5	7	--	--	--	--	110	.59
21...	1050	4.2	726	10.0	9	7.5	.69	8.2	.64	205	2.3
24...	1440	3.2	594	14.4	16	--	--	--	--	104	.90

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	TOTAL PCB (UG/L)	PCB IN BOTTOM MATERIAL (UG/KG)	TOTAL ALDRIN (UG/L)	ALDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL CHLORDANE (UG/L)	CHLORDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDD (UG/L)	DDD IN BOTTOM MATERIAL (UG/KG)	TOTAL DDE (UG/L)	DDE IN BOTTOM MATERIAL (UG/KG)	TOTAL DDT (UG/L)
AUG 1976												
27...	1340	.0	0	.00	.0	.0	0	.03	15	.05	20	.10

DATE	DDT IN BOTTOM MATERIAL (UG/KG)	TOTAL DIAZINON (UG/L)	DIAZINON IN BOTTOM MATERIAL (UG/KG)	TOTAL DIELDRIN (UG/L)	DIELDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ENDRIN (UG/L)	ENDRIN IN BOTTOM MATERIAL (UG/KG)	TOTAL ETHION (UG/L)	ETHION IN BOTTOM MATERIAL (UG/KG)	TOTAL HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM MATERIAL (UG/KG)
AUG 1976											
27...	55	.00	.0	.04	2.0	.00	.0	.00	.0	.00	.0

DATE	TOTAL HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM MATERIAL (UG/KG)	TOTAL LINDANE (UG/L)	LINDANE IN BOTTOM MATERIAL (UG/KG)	TOTAL MALATHION (UG/L)	MALATHION IN BOTTOM MATERIAL (UG/KG)	TOTAL METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM MATERIAL (UG/KG)	TOTAL METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM MATERIAL (UG/KG)	TOTAL PARATHION (UG/L)
AUG 1976											
27...	.00	.0	.01	.0	.00	.0	.00	.0	.00	.0	.00

DATE	PARATHION IN BOTTOM MATERIAL (UG/KG)	TOTAL TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM MATERIAL (UG/KG)	TOTAL TRITHION (UG/L)	TRITHION IN BOTTOM MATERIAL (UG/KG)	TOTAL 2,4-D (UG/L)	2,4-D IN BOTTOM MATERIAL (UG/KG)	TOTAL 2,4,5-T (UG/L)	2,4,5-T IN BOTTOM MATERIAL (UG/KG)	TOTAL SILVEX (UG/L)	SILVEX IN BOTTOM MATERIAL (UG/KG)
AUG 1976											
27...	.0	0	0	.00	.0	.00	0	.00	0	.00	0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
SEP 1976												
23...	1230	17	332	11	16	21	29	42	66	86	99	100
27...	1215	18	342	--	--	--	--	--	--	--	--	--

12508810 WASHOUT DRAIN AT SUNNYSIDE, WA

LOCATION.--Lat 46°18'35", long 119°59'24", in SE¼NW¼ sec.31, T.10 N., R.23 E., Yakima County, Hydrologic Unit 17030003, at road crossing 0.7 mi (1.1 km) southeast of Sunnyside.

PERIOD OF RECORD.--March 1976 to March 1977 (discontinued).

WATER QUALITY DATA, MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1976											
18...	1440	4.0	740	11.6	2	7.0	.37	7.4	.12	3	.03
22...	1545	4.0	680	11.6	1	--	--	--	--	3	.03
26...	1700	4.0	705	12.0	1	--	--	--	--	9	.10
29...	1745	3.5	730	14.6	2	--	--	--	--	12	.11
APR											
02...	1605	3.7	670	13.9	3	--	--	--	--	10	.10
05...	1410	8.7	253	15.7	22	2.2	1.0	3.2	.34	171	4.0
09...	1500	9.5	232	12.0	36	--	--	--	--	897	23
12...	1215	6.5	375	13.0	17	--	--	--	--	171	3.0
15...	1340	5.2	415	13.2	7	--	--	--	--	124	1.7
19...	1220	6.8	395	15.7	13	3.5	.95	4.4	.33	122	2.2
22...	1445	7.1	372	14.6	17	--	--	--	--	227	4.4
27...	1050	7.5	362	12.0	8	--	--	--	--	128	2.6
30...	1655	9.3	381	19.4	68	--	--	--	--	1610	40
MAY											
03...	1240	10	300	16.5	22	2.5	2.2	4.7	1.2	1220	33
07...	0835	12	278	11.0	53	--	--	--	--	1440	47
10...	1400	11	247	16.6	28	--	--	--	--	1780	53
13...	1245	11	280	20.0	35	--	--	--	--	1350	40
17...	1245	9.3	295	16.1	25	--	--	--	--	1770	44
21...	1015	14	277	12.7	61	3.2	1.9	5.1	1.0	1500	57
24...	1245	15	270	15.6	28	--	--	--	--	1660	67
27...	1110	12	255	14.4	19	--	--	--	--	1550	50
JUN											
01...	1655	12	247	16.9	27	2.8	2.3	5.1	.95	1080	35
03...	1200	15	335	15.1	32	--	--	--	--	1630	66
08...	1045	12	303	17.2	23	2.4	5.1	7.5	.54	927	30
08...	1205	12	305	19.0	23	--	--	--	--	956	31
08...	1320	11	288	19.8	22	2.3	5.2	7.5	.61	865	26
08...	1435	13	310	20.6	24	--	--	--	--	806	28
08...	1630	13	300	21.0	22	2.3	5.6	7.9	.51	844	30
08...	1815	13	310	19.8	21	--	--	--	--	844	30
08...	1915	13	302	18.8	22	2.4	5.4	7.8	.44	907	32
08...	2045	14	300	17.6	28	2.4	6.2	8.6	.70	942	36
08...	2215	15	288	16.6	25	--	--	--	--	997	40
08...	2355	15	288	15.7	27	2.2	5.8	8.0	.30	1030	42
09...	0130	16	278	15.0	28	--	--	--	--	1130	49
09...	0245	16	285	14.2	27	2.2	5.0	7.2	.76	1110	48
09...	0410	16	275	13.6	26	--	--	--	--	1090	47
09...	0555	16	270	13.0	28	2.0	5.6	7.6	.82	1140	49
09...	0715	17	275	12.8	28	--	--	--	--	1030	47
09...	0850	17	275	13.7	32	2.0	4.7	6.7	.86	1170	54
09...	1030	17	270	15.7	35	--	--	--	--	1090	50
09...	1150	16	265	17.7	38	2.0	4.0	6.0	.76	1170	51
09...	1335	16	265	20.3	22	--	--	--	--	980	42
09...	1500	16	265	21.9	22	2.1	4.1	6.2	.74	962	42
09...	1630	15	270	22.7	25	--	--	--	--	1030	42
09...	1740	14	275	22.3	26	2.2	3.8	6.0	.92	986	37
09...	1910	14	285	19.6	25	--	--	--	--	1020	39
09...	2100	14	285	19.0	33	2.4	4.1	6.5	.75	955	36
09...	2230	14	295	17.8	33	--	--	--	--	994	38
10...	0010	15	285	16.8	30	2.2	5.0	7.2	.73	1030	42
10...	0135	15	285	16.1	28	--	--	--	--	1010	41
10...	0255	16	285	15.6	27	2.2	5.9	8.1	.36	1010	44
10...	0420	16	275	15.3	27	--	--	--	--	1000	43
10...	0550	16	265	15.0	28	2.1	6.1	8.2	.68	1000	43
10...	0710	17	265	14.9	32	--	--	--	--	1050	48
10...	0840	17	265	15.0	29	2.0	4.3	6.3	.70	1020	47
10...	1045	17	285	16.4	33	2.1	6.0	8.1	.79	1210	56
14...	1300	16	250	17.5	18	--	--	--	--	876	38
17...	1230	13	298	18.8	27	--	--	--	--	840	29
21...	1535	13	285	20.6	19	2.5	1.1	3.6	.66	798	28
24...	1230	15	265	18.7	20	--	--	--	--	924	37
28...	1300	13	253	21.2	12	--	--	--	--	644	23
JUL											
01...	1330	14	275	18.6	22	--	--	--	--	820	31
06...	1215	19	250	21.2	17	2.0	1.6	3.6	.64	709	36
08...	1245	16	250	21.1	32	--	--	--	--	655	28
12...	1315	15	263	20.0	18	--	--	--	--	634	26
16...	1135	13	275	19.2	39	--	--	--	--	459	16
19...	1500	14	235	22.8	80	1.6	1.2	2.8	.49	286	11
22...	1415	12	295	22.2	37	--	--	--	--	597	19
26...	1600	8.9	270	24.8	24	--	--	--	--	351	8.4
AUG											
03...	1125	13	315	19.1	43	2.3	.76	3.1	.52	476	17
06...	1140	15	285	18.1	73	--	--	--	--	589	24
10...	0945	13	320	16.4	55	--	--	--	--	616	22
10...	1025	12	325	17.3	49	2.4	.92	3.4	.64	618	20
10...	1120	12	325	18.3	59	--	--	--	--	532	17
10...	1240	12	335	20.1	76	2.6	1.0	3.6	.64	663	21

12508810 WASHOUT DRAIN AT SUNNYSIDE, WA--Continued

WATER QUALITY DATA, MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
AUG , 1976											
10...	1325	11	340	21.1	64	--	--	--	--	510	15
10...	1415	11	345	21.7	52	3.0	.94	3.9	.55	497	15
10...	1530	11	350	22.8	67	--	--	--	--	491	15
10...	1630	10	350	22.7	55	3.0	.92	3.9	.51	486	13
10...	1730	10	360	22.7	81	--	--	--	--	513	14
10...	1825	11	360	21.7	108	3.0	.64	3.7	.60	585	17
10...	1905	11	355	21.0	108	--	--	--	--	564	17
10...	2010	11	355	20.1	194	2.9	1.2	4.1	.96	863	26
10...	2130	12	340	19.3	195	--	--	--	--	1040	34
10...	2230	12	335	18.6	195	2.8	1.5	4.3	.92	1080	35
10...	2330	12	325	18.3	173	--	--	--	--	1100	36
11...	0030	13	320	17.5	151	2.6	1.4	4.0	.88	1070	38
11...	0135	13	320	17.2	162	--	--	--	--	885	31
11...	0225	13	310	16.7	162	2.6	1.4	4.0	1.0	946	33
11...	0335	13	310	16.7	141	--	--	--	--	1010	35
11...	0425	13	310	16.5	146	2.6	1.3	3.9	.84	1050	37
11...	0510	13	310	16.2	146	--	--	--	--	1010	35
11...	0630	14	305	16.0	130	2.4	1.2	3.6	.93	1020	39
11...	0715	14	305	16.0	130	--	--	--	--	989	37
11...	0810	14	305	16.3	119	2.4	1.1	3.5	.72	973	37
11...	0945	13	310	17.1	130	--	--	--	--	828	29
11...	1030	13	315	17.7	108	2.6	.90	3.5	.64	899	32
11...	1120	13	315	18.5	108	--	--	--	--	804	28
11...	1220	13	320	20.0	108	2.6	.98	3.6	.58	862	30
11...	1320	13	325	21.2	119	--	--	--	--	836	29
11...	1420	13	325	22.1	130	2.8	1.0	3.8	.71	879	31
11...	1540	13	325	23.7	130	--	--	--	--	851	30
11...	1625	13	325	23.8	130	2.6	1.4	4.0	.75	804	28
11...	1710	13	320	23.8	119	--	--	--	--	800	28
11...	1810	12	320	22.2	141	2.7	1.1	3.8	.81	767	25
11...	1910	12	320	21.4	119	--	--	--	--	722	23
11...	2010	12	325	20.4	119	2.6	1.1	3.7	.70	704	23
11...	2120	12	325	19.6	108	--	--	--	--	758	25
11...	2220	13	325	19.1	106	2.6	1.0	3.6	.61	--	--
11...	2320	13	325	18.4	108	--	--	--	--	797	28
12...	0020	13	325	17.9	96	2.5	1.0	3.5	.67	826	29
12...	0120	13	310	17.5	130	--	--	--	--	870	31
12...	0220	14	310	17.0	94	2.6	.96	3.6	.72	872	33
12...	0315	13	310	16.8	108	--	--	--	--	827	29
12...	0435	13	310	16.5	80	2.4	1.0	3.4	.76	757	27
12...	0515	13	310	16.3	76	--	--	--	--	740	26
12...	0610	14	295	16.0	88	2.4	.98	3.4	.67	763	29
12...	0710	14	305	16.3	84	--	--	--	--	796	30
12...	0805	14	305	16.4	74	2.6	.90	3.5	.69	751	28
16...	1430	14	280	18.5	52	--	--	--	--	628	24
20...	1015	12	300	16.3	19	--	--	--	--	284	9.2
24...	1100	12	303	17.6	62	--	--	--	--	481	16
27...	1200	12	310	17.3	31	2.4	.90	3.3	.38	367	12
31...	1145	11	350	18.4	33	--	--	--	--	394	12
SEP											
02...	1500	11	320	21.3	26	--	--	--	--	318	9.4
07...	1415	13	280	18.0	23	1.8	.56	2.4	.36	341	12
09...	1215	11	323	15.9	20	--	--	--	--	252	7.5
15...	1330	10	280	18.4	22	--	--	--	--	201	5.4
17...	1300	10	345	16.7	22	--	--	--	--	204	5.5
20...	1600	11	325	--	9	--	--	--	--	165	4.9
23...	1245	10	340	18.0	8	3.1	.53	3.6	.22	116	3.1
27...	1415	11	320	19.4	11	--	--	--	--	119	3.5
OCT											
01...	1300	10	350	16.8	16	--	--	--	--	148	4.0
04...	1630	8.5	395	15.2	10	3.1	.48	3.6	.17	81	1.9
08...	1215	9.7	385	14.3	8	--	--	--	--	96	2.5
12...	1515	9.9	360	16.1	13	--	--	--	--	113	3.0
15...	1215	10	340	11.9	13	--	--	--	--	141	3.8
18...	1430	11	340	12.1	12	2.5	.51	3.0	.20	146	4.3
22...	1300	7.5	445	11.5	13	--	--	--	--	128	2.6
NOV											
03...	1530	3.6	690	14.3	2	7.4	.48	7.9	.12	14	.14
08...	1430	3.0	690	14.0	2	--	--	--	--	46	.37
11...	1420	3.0	658	12.8	1	--	--	--	--	13	.11
15...	1215	2.9	615	9.5	2	--	--	--	--	24	.19
22...	1300	2.9	639	7.7	2	--	--	--	--	14	.11
26...	1325	3.1	600	6.0	2	--	--	--	--	15	.13
30...	1150	2.6	649	4.2	2	7.3	.29	7.6	.13	15	.11
DEC											
03...	1245	2.4	604	4.9	1	--	--	--	--	14	.09
06...	1015	2.2	688	6.1	1	--	--	--	--	24	.14
10...	1145	2.3	633	5.8	1	--	--	--	--	4	.02
13...	1300	2.3	726	8.3	4	8.4	.41	8.8	.14	16	.10

12508810 WASHOUT DRAIN AT SUNNYSIDE, WA--Continued

WATER QUALITY DATA, MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
DEC • 1976											
17...	1015	2.1	604	5.7	4	--	--	--	--	13	.07
20...	1230	2.0	600	5.3	1	--	--	--	--	10	.05
23...	1015	2.0	588	6.3	2	--	--	--	--	8	.04
27...	1245	2.0	710	7.9	3	8.5	.54	9.0	.15	18	.10
30...	1245	2.1	612	6.7	2	--	--	--	--	13	.07
JAN • 1977											
03...	1455	1.8	617	6.8	2	--	--	--	--	7	.03
07...	1130	1.8	590	3.6	1	--	--	--	--	35	.17
14...	1045	1.7	551	5.2	1	--	--	--	--	27	.12
17...	1255	1.8	595	7.6	3	7.6	.47	8.1	.15	15	.07
31...	1400	1.9	695	7.3	1	--	--	--	--	37	.19
FEB											
08...	1450	1.8	699	9.4	1	8.2	.48	8.7	.16	2	.01
15...	1650	2.2	695	11.0	2	--	--	--	--	2	.01
22...	1200	1.7	607	11.0	1	8.4	.41	8.8	.14	3	.01
MAR											
07...	1200	1.9	693	10.4	1	--	--	--	--	8	.04
11...	1345	3.3	698	13.6	1	--	--	--	--	4	.04
14...	1230	3.7	632	9.3	1	--	--	--	--	8	.08
18...	1015	1.9	519	9.0	2	--	--	--	--	8	.04
21...	1135	2.1	605	10.2	1	7.7	.46	8.2	.11	8	.05
24...	1455	1.8	519	14.4	1	--	--	--	--	4	.02

12508820 BLACK CANYON CREEK AT WANETA ROAD NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°17'24", long 119°58'37", in SW¼SW¼ sec.5, T.9 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on left bank 20 ft (6.1 m) upstream from Waneta Road county bridge, 1.0 mi (1.6 km) upstream from mouth (on Sulphur Creek wasteway), and 2.2 mi (3.5 km) southeast of Sunnyside.

DRAINAGE AREA.--35.8 mi² (92.7 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1976 to March 1977 (discontinued).

GAGE.--Water-stage recorder. Datum of gage 700 ft (213 m) from topographic map.

REMARKS.--Water-discharge records good. Regulation from agricultural return of flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37 ft³/s (1.05 m³/s) July 6, 1976; maximum gage height, 1.86 ft (0.567 m) July 12, 1976; minimum, 1.4 ft³/s (0.040 m³/s) Mar. 31, 1977.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1976 TO MARCH 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	14	11	9.9	8.9	7.4						
2	26	14	11	9.9	8.9	7.1						
3	25	13	11	9.9	8.9	7.4						
4	26	13	12	9.9	8.9	6.7						
5	25	13	11	9.6	8.9	6.7						
6	24	13	12	9.4	8.9	6.5						
7	24	13	12	9.4	8.9	6.5						
8	26	13	12	9.4	8.1	6.7						
9	25	13	12	9.1	7.6	6.5						
10	25	14	12	9.1	8.4	6.5						
11	24	14	12	9.1	7.1	6.5						
12	24	14	11	9.1	7.1	6.5						
13	25	13	11	9.1	7.1	6.5						
14	24	13	11	9.1	7.1	6.1						
15	24	13	11	9.1	6.9	5.9						
16	25	13	11	9.1	6.9	5.9						
17	24	13	11	9.1	6.7	5.7						
18	25	13	11	9.6	6.7	5.1						
19	22	13	10	9.4	6.7	4.8						
20	22	13	10	9.4	6.7	4.6						
21	20	13	10	9.4	7.1	4.6						
22	16	13	10	9.4	6.7	4.3						
23	16	13	10	9.4	6.7	3.3						
24	16	13	10	9.4	6.7	3.1						
25	15	12	10	9.4	6.5	2.6						
26	14	12	11	9.4	6.7	2.1						
27	15	12	10	9.4	6.7	2.1						
28	15	12	10	9.1	7.9	2.1						
29	13	12	10	9.1	---	2.2						
30	13	12	9.9	9.1	---	2.1						
31	14	---	9.9	9.1	---	1.9						
TOTAL	658	389	335.8	289.9	210.4	156.0						
MEAN	21.2	13.0	10.8	9.35	7.51	5.03						
MAX	26	14	12	9.9	8.9	7.4						
MIN	13	12	9.9	9.1	6.5	1.9						
AC-FT	1310	772	666	575	417	309						

12508820 BLACK CANYON CREEK AT WANETA ROAD NEAR SUNNYSIDE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1976 to March 1977 (discontinued).

WATER QUALITY DATA, MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1976											
18...	1055	5.8	580	10.4	2	7.5	.58	8.1	.08	9	.14
22...	1655	6.3	670	9.6	3	--	--	--	--	45	.77
26...	1645	7.9	599	12.4	5	--	--	--	--	33	.70
29...	1655	7.7	501	14.4	7	--	--	--	--	37	.77
APR											
02...	1305	8.1	590	10.5	27	--	--	--	--	84	1.8
05...	1320	11	425	14.2	25	4.1	.98	5.1	.50	249	7.4
09...	1510	11	421	11.7	42	--	--	--	--	559	17
12...	1230	12	475	12.7	37	--	--	--	--	527	17
15...	1355	15	317	11.9	20	--	--	--	--	678	27
19...	1205	17	400	14.1	43	3.5	2.0	5.5	1.0	914	42
22...	1515	15	510	14.6	53	--	--	--	--	1140	46
27...	1035	13	475	11.6	13	--	--	--	--	427	15
30...	1645	12	688	20.1	13	--	--	--	--	484	16
MAY											
03...	1345	15	510	18.2	12	4.5	1.4	5.9	.66	549	22
07...	0820	20	387	11.4	53	--	--	--	--	1680	91
10...	1415	18	315	16.0	24	--	--	--	--	1510	73
13...	1300	19	343	19.5	44	--	--	--	--	2060	106
17...	1300	23	360	16.4	39	--	--	--	--	2570	160
21...	1030	26	358	13.3	67	3.0	3.0	6.0	1.8	2870	201
24...	1245	27	330	15.5	29	--	--	--	--	2380	174
27...	1100	25	285	14.4	37	--	--	--	--	2250	152
JUN											
01...	1640	24	307	16.0	42	3.5	2.5	6.0	1.3	1930	125
03...	1215	23	445	15.0	27	--	--	--	--	1690	105
08...	1030	23	405	16.4	38	3.8	6.6	10	1.5	2650	165
08...	1200	21	425	18.3	39	--	--	--	--	2610	148
08...	1310	21	425	19.6	37	3.8	6.5	10	1.5	2480	141
08...	1430	20	435	20.6	38	--	--	--	--	2270	123
08...	1615	19	445	20.9	40	4.1	6.4	10	.88	2150	110
08...	1800	18	445	20.1	48	--	--	--	--	2160	105
08...	1915	18	455	19.1	48	4.4	5.5	9.9	.88	2220	108
08...	2035	19	455	17.9	57	4.4	5.8	10	1.5	2150	110
08...	2200	19	760	16.7	58	--	--	--	--	2390	123
08...	2345	20	455	15.5	63	4.2	7.3	11	2.8	2990	161
09...	0115	21	445	14.6	80	--	--	--	--	3360	191
09...	0245	21	435	13.9	72	3.9	7.3	11	2.7	3320	188
09...	0400	22	425	13.1	70	--	--	--	--	3250	193
09...	0540	23	420	12.6	77	3.9	7.6	11	2.5	3340	207
09...	0710	23	420	12.5	79	--	--	--	--	3380	210
09...	0840	24	410	13.2	69	3.8	6.3	10	2.4	3150	204
09...	1020	23	410	14.9	77	--	--	--	--	2910	181
09...	1145	22	410	17.0	77	3.9	6.3	10	2.0	2890	172
09...	1320	21	425	18.4	49	--	--	--	--	2900	164
09...	1445	20	435	21.7	53	4.2	7.1	11	2.4	2920	158
09...	1615	19	435	23.1	62	--	--	--	--	2730	140
09...	1730	18	435	22.4	56	4.1	6.5	11	1.2	2750	134
09...	1900	18	435	20.2	53	--	--	--	--	2470	120
09...	2050	18	455	19.3	49	4.6	5.6	10	1.5	2460	120
09...	2215	19	455	17.6	52	--	--	--	--	2620	134
09...	2355	20	440	16.3	48	4.6	5.4	10	2.1	2720	147
10...	0125	21	425	15.9	51	--	--	--	--	2910	165
10...	0245	22	425	15.4	47	4.2	6.5	11	1.6	3090	184
10...	0410	23	430	15.0	45	--	--	--	--	3150	196
10...	0535	23	415	14.6	51	3.8	7.0	11	.84	3040	189
10...	0655	24	400	14.6	54	--	--	--	--	3230	209
10...	0830	25	400	14.6	58	3.7	7.2	11	1.6	3310	223
10...	1030	24	400	15.8	52	3.8	7.0	11	1.3	3070	199
14...	1315	24	385	18.0	42	--	--	--	--	2110	137
17...	1245	24	385	18.5	29	--	--	--	--	2020	131
21...	1545	22	450	21.2	37	4.5	3.1	7.6	1.4	1760	105
24...	1245	25	400	18.7	25	--	--	--	--	2260	153
28...	1315	26	405	20.0	37	--	--	--	--	2500	175
JUL											
01...	1345	24	445	18.6	27	--	--	--	--	1870	121
06...	1230	36	317	21.1	38	3.6	5.6	9.2	2.0	2860	278
08...	1300	34	330	20.5	39	--	--	--	--	2960	272
12...	1315	27	365	19.8	28	--	--	--	--	1790	130
16...	1125	29	390	18.4	104	--	--	--	--	1540	121
19...	1515	22	403	22.6	130	4.8	1.6	6.4	.94	1300	77
22...	1430	24	340	22.1	140	--	--	--	--	1700	110
26...	1615	23	405	24.0	108	--	--	--	--	1420	88
29...	1330	26	400	18.8	79	--	--	--	--	1970	138
AUG											
03...	1115	28	425	18.4	72	3.4	2.1	5.5	.57	1540	116
06...	1200	29	385	17.6	56	--	--	--	--	1650	129
10...	0955	30	410	16.1	68	--	--	--	--	1190	96
10...	1035	30	410	16.6	54	3.6	2.7	6.3	.56	1330	108
10...	1135	29	410	17.5	67	--	--	--	--	1210	95

12508820 BLACK CANYON CREEK AT WANETA ROAD NEAR SUNNYSIDE, WA--Continued

WATER QUALITY DATA, MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
AUG , 1976											
10...	1225	28	410	18.5	68	3.6	3.0	6.6	1.0	1180	89
10...	1335	27	415	19.6	38	--	--	--	--	1080	79
10...	1440	25	435	20.5	44	3.8	1.8	5.6	.45	1020	69
10...	1545	24	435	21.7	50	--	--	--	--	1000	65
10...	1640	23	435	22.3	56	4.2	1.7	5.9	.45	986	61
10...	1740	23	435	22.0	44	--	--	--	--	955	59
10...	1835	23	435	21.7	65	4.3	1.9	6.2	.61	979	61
10...	1925	23	435	20.7	51	--	--	--	--	941	58
10...	2020	23	435	20.7	76	4.3	1.7	6.0	.55	1030	64
10...	2150	24	435	19.6	74	--	--	--	--	1120	73
10...	2245	25	425	18.7	77	4.1	1.4	5.5	.61	1330	90
10...	2340	25	425	18.3	69	--	--	--	--	1150	78
11...	0045	25	425	17.5	63	3.9	1.5	5.4	.50	1100	74
11...	0150	26	425	16.7	68	--	--	--	--	1060	74
11...	0245	26	420	16.4	71	3.6	1.2	4.8	.45	1220	86
11...	0345	26	415	16.5	52	--	--	--	--	1240	87
11...	0440	27	415	16.0	53	3.6	1.2	4.8	.55	1220	89
11...	0520	27	415	15.8	52	--	--	--	--	1190	87
11...	0640	27	415	15.5	52	3.6	1.3	4.9	.41	1220	89
11...	0725	28	410	15.6	48	--	--	--	--	1190	90
11...	0820	28	410	15.6	35	3.4	1.2	4.6	.58	1110	84
11...	1000	28	415	16.4	151	--	--	--	--	1750	132
11...	1045	29	420	16.9	130	3.7	1.4	5.1	.58	1270	99
11...	1140	28	420	17.4	57	--	--	--	--	1060	80
11...	1240	27	420	19.1	55	3.3	.90	4.2	.51	1070	78
11...	1340	26	425	20.5	68	--	--	--	--	1200	84
11...	1440	24	425	21.3	55	3.7	1.1	4.8	.41	922	60
11...	1550	24	435	22.4	71	--	--	--	--	976	63
11...	1635	24	440	22.8	53	3.6	1.6	5.2	.58	1040	67
11...	1720	23	435	22.8	68	--	--	--	--	1020	63
11...	1820	23	435	21.9	83	4.0	1.4	5.4	.55	1050	65
11...	1920	22	440	21.6	151	--	--	--	--	1120	67
11...	2020	24	445	20.7	74	4.1	1.4	5.5	.75	1360	88
11...	2140	25	435	19.6	54	--	--	--	--	1150	78
11...	2240	26	425	18.7	90	3.7	1.5	5.2	.65	1350	95
11...	2340	26	420	18.3	84	--	--	--	--	1380	97
12...	0040	27	420	17.5	79	--	--	--	--	1410	103
12...	0140	27	420	17.1	83	--	--	--	--	1410	103
12...	0240	28	415	16.6	68	3.4	1.4	4.8	.71	1350	102
12...	0325	28	410	16.4	65	--	--	--	--	1210	91
12...	0450	29	405	16.0	63	3.1	1.4	4.5	.65	1320	103
12...	0530	29	405	16.0	57	--	--	--	--	1270	99
12...	0620	30	405	15.7	66	3.5	1.5	5.0	.68	1340	109
12...	0720	30	405	15.8	58	--	--	--	--	1300	105
12...	0815	30	400	15.8	56	3.5	1.6	5.1	.90	1200	97
16...	1445	28	395	18.4	97	--	--	--	--	963	73
20...	1000	34	365	16.2	46	--	--	--	--	1130	104
24...	1045	31	400	17.0	37	--	--	--	--	895	75
27...	1145	29	415	15.8	28	3.3	.80	4.1	.32	810	63
31...	1130	25	430	17.1	23	--	--	--	--	484	33
SEP											
02...	1515	20	440	19.8	28	--	--	--	--	379	20
07...	1430	23	415	17.0	26	3.5	.80	4.3	.42	366	23
09...	1230	25	465	14.0	29	--	--	--	--	471	32
15...	1345	24	385	17.5	21	--	--	--	--	359	23
17...	1245	24	465	15.7	23	--	--	--	--	352	23
20...	1615	23	455	--	17	--	--	--	--	322	20
23...	1300	24	445	16.8	27	3.8	.74	4.5	.46	400	26
27...	1400	26	435	17.4	19	--	--	--	--	388	27
OCT											
01...	1315	27	425	17.5	25	--	--	--	--	448	33
04...	1645	25	475	15.1	19	3.7	.64	4.3	.31	496	33
08...	1230	26	478	13.7	13	--	--	--	--	362	25
12...	1530	24	443	14.9	21	--	--	--	--	298	19
15...	1230	24	400	11.0	36	--	--	--	--	424	27
18...	1445	25	450	11.8	21	1.9	.44	2.3	.18	312	21
22...	1315	16	650	11.2	8	--	--	--	--	269	12
NOV											
03...	1530	14	677	13.7	4	7.4	.50	7.9	.16	144	5.4
08...	1500	13	582	13.3	4	--	--	--	--	171	6.0
11...	1545	14	647	12.1	4	--	--	--	--	149	5.6
15...	1230	12	578	9.6	3	--	--	--	--	93	3.0
22...	1315	12	595	7.9	6	--	--	--	--	99	3.2
26...	1115	12	562	5.5	3	--	--	--	--	107	3.5
30...	1135	11	620	6.0	4	6.9	.42	7.3	.19	88	2.6
DEC											
03...	1235	11	572	5.5	4	--	--	--	--	87	2.6
06...	1030	12	655	6.4	4	--	--	--	--	105	3.4
10...	1130	11	592	6.3	4	--	--	--	--	96	2.9

12508820 BLACK CANYON CREEK AT WANETA ROAD NEAR SUNNYSIDE, WA--Continued

WATER QUALITY DATA, MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
DEC , 1976											
13...	1315	11	688	8.2	3	8.6	.43	9.0	.12	85	2.5
17...	1030	11	590	6.5	4	--	--	--	--	78	2.3
20...	1245	10	566	6.1	4	--	--	--	--	96	2.6
23...	1030	10	562	6.8	4	--	--	--	--	83	2.2
27...	1300	10	672	7.9	4	8.8	.50	9.3	.15	73	2.0
30...	1145	9.9	584	6.6	5	--	--	--	--	103	2.8
JAN , 1977											
03...	1500	10	592	7.5	5	--	--	--	--	120	3.2
07...	1145	9.4	566	4.6	6	--	--	--	--	97	2.5
14...	1100	9.1	530	6.0	6	--	--	--	--	90	2.2
17...	1305	9.1	601	7.4	3	8.8	.62	9.4	.16	92	2.3
25...	1345	9.1	564	7.7	5	--	--	--	--	132	3.2
31...	1430	8.8	601	7.3	4	--	--	--	--	118	2.8
FEB											
08...	1430	7.8	602	9.2	7	8.9	.67	9.6	.23	155	3.3
15...	1655	6.9	659	11.0	4	--	--	--	--	92	1.7
22...	1225	5.9	590	10.0	5	9.4	.41	9.8	.11	47	.75
MAR											
07...	1215	6.5	649	10.3	3	--	--	--	--	67	1.2
11...	1400	6.5	671	13.0	3	--	--	--	--	41	.72
14...	1245	6.3	561	9.4	3	--	--	--	--	48	.82
18...	1030	4.8	495	9.0	3	--	--	--	--	25	.32
21...	1155	4.9	596	10.4	2	7.7	.38	8.1	.11	30	.40
24...	1505	3.0	470	13.6	1	--	--	--	--	9	.07

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUS. SED. FALL DIAM. % FINER THAN .002 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
AUG												
12...	0325	28	1210	--	--	--	--	--	--	--	--	--
12...	0450	29	1320	--	--	--	--	--	--	--	--	--
12...	0530	29	1270	--	--	--	--	--	--	--	--	--
12...	0620	30	1340	--	--	--	--	--	--	--	--	--
12...	0720	30	1300	--	--	--	--	--	--	--	--	--
12...	0815	30	1200	--	--	--	--	--	--	--	--	--
16...	1445	28	963	--	--	--	--	--	--	--	--	--
20...	1000	34	1130	--	--	--	--	--	--	--	--	--
24...	1045	31	895	--	--	--	--	--	--	--	--	--
27...	1145	29	810	--	--	--	--	--	--	--	--	--
31...	1130	25	484	--	--	--	--	--	--	--	--	--
SEP												
02...	1515	20	379	--	--	--	--	--	--	--	--	--
07...	1430	23	366	--	--	--	--	--	--	--	--	--
09...	1230	25	471	--	--	--	--	--	--	--	--	--
15...	1345	24	359	--	--	--	--	--	--	--	--	--
17...	1245	24	352	--	--	--	--	--	--	--	--	--
20...	1615	23	322	--	--	--	--	--	--	--	--	--
23...	1300	24	400	9	11	19	26	36	56	77	97	100
27...	1400	26	388	--	--	--	--	--	--	--	--	--

12508830 DID 9 DRAIN NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°17'00", long 119°59'53", in SW¼NW¼ sec.7, T.9 N., R.23 E., Hydrologic Unit 17030003, on right bank on upstream side of culvert on county road, 300 ft (91 m) upstream from mouth (on Sulphur Creek wasteway), and 2.2 mi (3.5 km) south of Sunnyside.

DRAINAGE AREA.--27.1 mi² (70.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1976 to March 1977 (discontinued).

GAGE.--Water-stage recorder. Datum 690 ft (210 m) from topographic map.

REMARKS.--Water-discharge records excellent. Flow regulated by agricultural return flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62 ft³/s (1.76 m³/s) July 12, 1976, gage height, 4.66 ft (1.420 m); minimum daily, 12 ft³/s (0.34 m³/s) Mar. 1, 1976, Mar. 23-26, 28-31, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1976 to March 1977, 55 ft³/s (156 m³/s) Oct. 4, gage height, 4.41 ft (1.344 m); minimum, 11 ft³/s (0.31 m³/s) Mar. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1976 TO MARCH 1977.
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	31	24	21	21	20						
2	51	31	24	21	21	18						
3	52	31	24	23	21	19						
4	54	32	24	23	21	17						
5	52	30	24	22	21	17						
6	51	28	24	22	21	17						
7	51	28	24	22	21	17						
8	51	28	25	22	22	17						
9	51	28	24	21	22	17						
10	51	28	23	21	22	16						
11	49	28	23	22	22	16						
12	49	28	22	22	22	17						
13	49	28	22	22	21	16						
14	48	28	22	22	21	15						
15	49	27	22	22	21	14						
16	49	27	22	22	20	14						
17	51	27	22	22	20	16						
18	52	26	22	23	20	15						
19	41	26	21	23	20	14						
20	32	26	21	22	20	14						
21	31	26	21	23	21	14						
22	31	25	21	22	20	13						
23	30	25	22	22	20	12						
24	30	25	21	22	19	12						
25	30	25	21	23	18	12						
26	29	24	22	22	18	12						
27	29	24	21	22	18	13						
28	31	24	21	22	22	12						
29	31	24	21	22	---	12						
30	31	24	21	22	---	12						
31	33	---	21	22	---	12						
TOTAL	1319	812	692	684	576	462						
MEAN	42.5	27.1	22.3	22.1	20.6	14.9						
MAX	54	32	25	23	22	20						
MIN	29	24	21	21	18	12						
AC-FT	2620	1610	1370	1360	1140	916						

12508830 DID 9 DRAIN NEAR SUNNYSIDE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1976 to March 1977 (discontinued).

WATER QUALITY DATA MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1976											
18...	1125	17	820	10.7	5	5.0	.66	5.7	.19	102	4.7
22...	1645	17	730	9.9	5	--	--	--	--	112	5.1
26...	1425	18	630	11.9	6	--	--	--	--	93	4.5
29...	1735	16	700	14.0	6	--	--	--	--	134	5.8
APR											
02...	1335	18	620	11.4	3	--	--	--	--	66	3.2
05...	1305	20	570	14.7	2	5.2	.50	5.8	.17	136	7.3
09...	1520	26	670	12.1	10	--	--	--	--	356	25
12...	1240	29	590	12.7	7	--	--	--	--	290	23
15...	1405	33	500	11.7	6	--	--	--	--	357	32
19...	1145	36	530	12.4	7	3.6	.77	4.4	.36	401	39
22...	1530	33	570	14.4	7	--	--	--	--	473	42
27...	1020	41	475	10.6	7	--	--	--	--	490	54
30...	1630	36	570	17.8	6	--	--	--	--	464	45
MAY											
03...	1445	34	510	17.0	5	3.6	.71	4.3	.26	480	44
07...	0810	40	420	11.0	15	--	--	--	--	420	45
10...	1430	36	440	15.4	7	--	--	--	--	565	55
13...	1315	36	413	17.8	13	--	--	--	--	529	51
17...	1315	42	429	15.3	7	--	--	--	--	622	71
21...	1045	44	466	13.0	13	5.3	.88	6.2	.48	517	61
24...	1300	42	425	14.7	7	--	--	--	--	520	59
27...	1050	44	465	13.7	9	--	--	--	--	654	78
JUN											
01...	1630	54	345	15.1	6	3.1	.73	3.8	.30	590	86
03...	1215	53	300	14.1	5	--	--	--	--	420	61
08...	1015	50	435	16.9	6	2.8	.97	3.8	.83	746	101
08...	1150	49	440	17.0	6	--	--	--	--	543	72
08...	1305	48	440	18.0	7	2.8	1.4	4.2	.47	629	82
08...	1420	47	465	18.6	8	--	--	--	--	553	70
08...	1600	48	470	19.8	7	3.0	1.3	4.3	.43	579	75
08...	1745	44	485	19.3	8	--	--	--	--	515	61
08...	1900	42	480	18.7	8	3.1	.96	4.1	.42	510	58
08...	2030	42	485	18.0	7	3.1	4.0	7.1	.38	531	60
08...	2155	43	505	17.1	13	--	--	--	--	1700	197
08...	2330	43	475	16.1	8	3.1	.98	4.1	.62	993	115
09...	0100	44	465	15.2	9	--	--	--	--	894	106
09...	0230	44	465	14.6	8	3.0	.78	3.8	.40	895	106
09...	0400	46	450	14.0	8	--	--	--	--	715	89
09...	0525	47	455	13.4	8	2.9	.91	3.8	.60	775	98
09...	0700	48	455	13.2	9	--	--	--	-	722	94
09...	0835	49	460	13.7	9	2.9	1.2	4.1	.59	704	93
09...	1010	49	460	14.6	10	--	--	--	--	671	89
09...	1135	49	460	15.7	8	2.9	.82	3.7	.36	651	86
09...	1310	48	450	18.6	5	--	--	--	--	600	78
09...	1435	47	450	19.0	7	3.0	.91	3.9	.33	594	75
09...	1605	44	465	20.7	7	--	--	--	--	717	85
09...	1720	43	475	20.6	7	3.0	1.2	4.2	.46	846	98
09...	1845	42	475	20.3	7	--	--	--	--	666	76
09...	2040	41	480	19.3	7	3.2	.94	4.1	.32	532	59
09...	2205	41	480	17.9	7	--	--	--	--	483	53
09...	2345	42	485	16.9	9	3.2	.84	4.0	.48	603	68
10...	0115	40	480	16.2	7	--	--	--	--	604	65
10...	0230	44	480	15.6	7	3.2	1.2	4.4	.52	557	66
10...	0355	45	465	15.2	8	--	--	--	--	634	77
10...	0525	46	465	15.0	8	3.0	.96	4.0	.44	660	82
10...	0645	47	455	14.7	9	--	--	--	--	559	71
10...	0820	48	455	14.7	9	3.0	.89	3.9	.45	503	65
10...	1015	48	455	15.4	9	3.0	.91	3.9	.36	571	74
14...	1315	55	405	16.4	7	--	--	--	--	769	114
17...	1300	51	390	17.1	6	--	--	--	--	520	72
21...	1555	46	480	19.4	6	2.7	.67	3.4	.35	420	52
24...	1300	50	425	17.9	6	--	--	--	--	340	46
28...	1330	49	450	18.8	7	--	--	--	--	467	62
JUL											
01...	1400	51	455	17.0	9	--	--	--	--	576	79
06...	1230	52	460	19.7	8	2.8	.78	3.6	.38	403	57
08...	1315	54	465	20.0	15	--	--	--	--	482	70
12...	1350	61	395	19.4	32	--	--	--	--	466	77
16...	1115	56	385	18.0	16	--	--	--	--	512	77
19...	1530	46	400	21.4	28	3.0	.88	3.9	.47	452	56
22...	1445	44	390	20.6	30	--	--	--	--	730	87
26...	1630	42	370	23.0	21	--	--	--	--	499	57
29...	1900	44	410	18.3	24	--	--	--	--	629	75
AUG											
03...	1100	55	415	18.0	20	2.7	1.4	4.1	.28	486	72
06...	1020	54	465	17.3	19	--	--	--	--	432	63
10...	0940	56	470	15.8	19	--	--	--	--	416	63
10...	1040	56	470	16.6	23	3.0	.70	3.7	.29	525	79
10...	1140	56	475	17.0	14	--	--	--	--	472	71

12508830 DID 9 DRAIN NEAR SUNNYSIDE, WA--Continued

WATER QUALITY DATA MARCH 1976 TO MARCH 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
AUG , 1976											
10...	1240	55	485	17.9	18	3.2	.78	4.0	--	486	72
10...	1340	54	485	18.7	19	--	--	--	--	415	61
10...	1440	53	490	19.7	19	2.4	.70	3.1	.32	478	68
10...	1550	53	490	20.6	20	--	--	--	--	525	75
10...	1630	53	490	20.6	23	3.2	.74	4.0	.50	498	71
10...	1730	52	490	19.9	25	--	--	--	--	502	70
10...	1830	51	490	21.0	24	3.3	.80	4.1	.36	551	76
10...	1930	50	495	20.6	22	--	--	--	--	522	70
10...	2030	50	505	20.2	18	3.3	.82	4.1	.46	521	70
10...	2140	50	505	19.2	17	--	--	--	--	556	75
10...	2240	50	505	18.6	15	3.0	.65	3.7	.35	456	62
10...	2340	50	500	18.3	14	--	--	--	--	420	57
11...	0040	50	500	17.6	16	3.0	.85	3.9	.27	417	56
11...	0140	50	500	17.3	18	--	--	--	--	442	60
11...	0240	50	495	17.0	18	3.2	.72	4.0	.29	390	54
11...	0350	50	490	16.4	17	--	--	--	--	--	--
11...	0430	51	490	16.3	17	3.1	.70	3.8	.33	482	66
11...	0525	51	485	16.0	15	--	--	--	--	510	71
11...	0640	52	485	15.7	16	3.1	.60	3.7	.26	541	76
11...	0730	53	485	15.8	20	--	--	--	--	521	75
11...	0830	54	485	15.9	17	3.1	.72	3.8	.39	526	77
11...	1010	53	475	17.0	17	--	--	--	--	438	63
11...	1110	53	485	17.6	12	3.1	.58	3.7	.31	499	71
11...	1155	53	485	17.7	15	--	--	--	--	461	66
11...	1300	52	490	19.0	18	3.2	.82	4.0	.43	555	78
11...	1400	52	495	19.9	23	--	--	--	--	486	68
11...	1450	52	495	20.6	28	3.3	.86	4.2	.44	556	78
11...	1555	51	500	20.6	29	--	--	--	--	619	85
11...	1630	50	500	21.0	28	3.2	.86	4.1	.46	595	80
11...	1730	49	500	21.3	24	--	--	--	--	561	76
11...	1825	48	505	21.6	22	3.0	.80	3.8	.37	466	60
11...	1915	48	510	21.4	23	--	--	--	--	391	51
11...	2020	48	505	20.7	20	3.3	.80	4.1	.37	488	63
11...	2150	48	505	19.9	18	--	--	--	--	461	60
11...	2245	48	505	19.1	17	3.1	.72	3.8	.36	552	72
11...	2330	48	515	18.9	17	--	--	--	--	509	66
12...	0040	49	505	18.4	14	2.7	.94	3.7	.45	547	72
12...	0135	49	495	17.8	14	--	--	--	--	506	67
12...	0230	50	495	17.4	13	2.6	1.3	3.9	.32	425	57
12...	0335	50	485	17.2	17	--	--	--	--	444	60
12...	0455	51	485	16.8	20	3.1	.82	3.9	.36	434	60
12...	0530	51	485	16.5	16	--	--	--	--	346	48
12...	0625	51	485	16.4	17	3.0	.70	3.7	.31	646	89
12...	0720	52	485	16.3	18	--	--	--	--	421	59
12...	0820	52	475	16.6	18	3.1	.70	3.8	.33	411	58
16...	1045	55	482	17.2	17	--	--	--	--	485	72
20...	0945	56	425	16.1	15	--	--	--	--	535	81
24...	1030	50	470	16.8	14	--	--	--	--	447	60
27...	1130	52	445	15.7	13	2.6	.72	3.3	.29	447	63
31...	1115	50	415	16.7	12	--	--	--	--	325	44
SEP											
02...	1530	46	500	19.0	10	--	--	--	--	376	47
07...	1445	53	400	16.4	25	3.0	.78	3.8	.35	390	57
09...	1245	56	390	14.6	12	--	--	--	--	333	50
15...	1400	57	395	16.0	9	--	--	--	--	297	46
17...	1230	53	425	15.5	62	--	--	--	--	302	55
20...	1630	48	475	--	6	--	--	--	--	323	42
23...	1315	50	470	16.3	6	3.2	.51	3.7	.31	341	46
27...	1445	52	470	16.5	7	--	--	--	--	347	49
OCT											
01...	1330	51	470	15.3	12	--	--	--	--	396	55
04...	1700	53	480	14.2	12	2.9	.52	3.4	.24	355	51
08...	1245	51	500	13.1	5	--	--	--	--	329	45
12...	1530	50	520	14.5	8	--	--	--	--	278	38
15...	1245	50	500	11.2	9	--	--	--	--	258	35
18...	1500	52	525	10.1	9	3.2	.64	3.8	.23	234	33
22...	1330	31	560	10.8	7	--	--	--	--	201	17
NOV											
03...	1515	33	682	13.4	6	3.8	.60	4.4	.21	350	31
08...	1600	30	674	11.8	7	--	--	--	--	272	22
12...	0945	27	663	8.5	7	--	--	--	--	261	19
15...	1245	27	580	8.1	6	--	--	--	--	241	18
22...	1330	25	595	7.3	8	--	--	--	--	191	13
26...	1100	25	568	5.5	8	--	--	--	--	250	17
30...	1115	24	610	4.3	8	5.6	.46	6.1	.19	260	17
DEC											
03...	1230	24	567	4.6	9	--	--	--	--	241	16
06...	1045	24	544	6.3	9	--	--	--	--	275	18
10...	1130	23	600	6.2	15	--	--	--	--	269	17

12508830 DID 9 DRAIN NEAR SUNNYSIDE, WA--Continued

WATER QUALITY DATA MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
DEC , 1976											
13...	1330	22	603	0.1	10	5.6	.68	6.1	.17	258	15
17...	1045	22	579	6.6	10	--	--	--	--	205	17
20...	1300	21	561	5.8	10	--	--	--	--	264	15
23...	1045	22	555	6.9	10	--	--	--	--	272	16
27...	1315	21	672	7.0	10	6.3	2.6	8.7	.66	269	15
30...	1130	21	581	7.1	10	--	--	--	--	252	14
JAN , 1977											
03...	1510	23	580	7.6	15	--	--	--	--	306	19
07...	1200	22	535	4.6	15	--	--	--	--	366	22
14...	1115	22	502	5.0	15	--	--	--	--	317	19
17...	1330	22	566	7.6	10	5.0	.69	6.5	.22	278	16
25...	1555	22	537	7.0	10	--	--	--	--	312	19
31...	1445	22	659	7.0	10	--	--	--	--	313	19
FEB											
08...	1350	22	630	8.6	15	6.0	.90	7.0	.32	320	19
15...	1705	20	650	9.9	10	--	--	--	--	253	16
22...	1240	19	530	10.2	10	6.0	.62	6.6	.16	187	9.6
MAR											
07...	1225	17	651	10.3	5	--	--	--	--	177	8.1
11...	1415	17	669	11.0	6	--	--	--	--	163	7.5
14...	1300	16	605	8.0	6	--	--	--	--	116	4.9
18...	1040	15	517	9.1	6	--	--	--	--	128	5.2
21...	1210	16	620	10.3	5	5.0	.36	6.2	.16	121	4.6
24...	1555	12	560	13.0	3	--	--	--	--	97	3.1

12506840 DID 3 DRAIN NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°16'58", long 120°00'30", in SW¼NE¼ sec.12, T.9 N., R.22 E.,Yakima County, Hydrologic Unit 17030003, on left bank 100 ft (30 m) upstream from culvert under Union Pacific railroad crossing, 0.6 mi (1.0 km) upstream from mouth (on Sulphur Creek wasteway), and 2.2 mi (3.5 km) south of Sunnyside.

DRAINAGE AREA.--18.8 mi² (48.7 km²).

WATER-DISCHARGE RECORD

PERIOD OF RECORD.--March 1976 to March 1977 (discontinued).

GAGE.--Water-stage recorder. Datum of gage 700 ft (213 m) from topographic map.

REMARKS.--Water-discharge record good. Regulation from agricultural return flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53 ft³/s (1.50 m³/s) Aug. 25, 1976, gage height, 6.51 ft (1.984 m); minimum daily, 9.8 ft³/s (0.28 m³/s) Mar. 1, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1976 to March 1977, 47 ft³/s (1.33 m³/s) Oct. 18, gage height, 6.31 ft (1.923 m); minimum, 10 ft³/s (0.28 m³/s) Mar. 30.

DISCHARGE, IN CUBIC FEET PER SECOND OCTOBER 1976 TO MARCH 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	22	15	14	14	17						
2	35	22	15	14	14	16						
3	34	22	15	14	14	18						
4	35	22	15	14	14	15						
5	36	22	15	14	14	15						
6	37	21	16	13	14	14						
7	35	21	17	13	14	15						
8	35	22	17	13	15	16						
9	36	22	16	13	15	15						
10	36	22	16	13	17	14						
11	37	22	16	13	16	15						
12	36	21	16	13	16	15						
13	38	21	16	13	15	14						
14	39	21	16	14	15	15						
15	38	22	15	14	15	15						
16	38	22	15	14	15	15						
17	39	21	15	14	15	15						
18	41	22	15	15	16	15						
19	39	21	14	16	14	15						
20	27	21	14	14	14	14						
21	25	21	15	14	17	14						
22	25	18	15	14	15	14						
23	25	15	15	14	14	14						
24	24	15	15	14	15	13						
25	24	14	15	14	16	13						
26	23	14	16	14	15	13						
27	23	14	15	14	15	13						
28	23	15	15	14	21	13						
29	23	15	14	14	---	12						
30	22	15	15	13	---	11						
31	22	---	14	14	---	15						
TOTAL	986	588	473	428	422	448						
MEAN	31.8	19.6	15.3	13.8	15.1	14.5						
MAX	41	22	17	16	21	18						
MIN	22	14	14	13	14	11						
AC-FT	1960	1170	938	849	837	889						

12506840 DID 3 DRAIN NEAR SUNNYSIDE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1976 to March 1977 (discontinued).

QUALITY WATER DATA, MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR., 1976											
18...	1145	12	840	12.2	14	4.9	3.7	8.6	1.5	216	7.0
22...	1615	13	725	11.6	18	--	--	--	--	61	2.1
26...	1440	14	945	12.4	15	--	--	--	--	91	3.4
29...	1725	14	820	14.3	26	--	--	--	--	85	3.2
APR											
02...	1520	16	810	13.9	31	--	--	--	--	178	7.7
05...	1250	16	580	15.0	19	5.6	2.9	8.4	1.5	115	5.0
09...	1530	16	680	12.4	9	--	--	--	--	128	5.5
12...	1310	19	681	13.0	10	--	--	--	--	290	15
15...	1415	19	570	12.5	9	--	--	--	--	288	15
19...	1135	22	520	13.4	18	3.9	2.1	6.0	1.2	391	23
22...	1600	20	530	14.4	18	--	--	--	--	302	16
27...	1010	21	505	11.1	17	--	--	--	--	702	40
30...	1515	21	603	17.9	18	--	--	--	--	727	42
MAY											
03...	1610	22	465	17.6	10	4.5	1.9	6.4	1.4	613	36
07...	0755	24	478	11.5	26	--	--	--	--	825	53
10...	1445	26	439	15.4	28	--	--	--	--	1570	110
13...	1415	25	337	20.4	31	--	--	--	--	1120	76
17...	1330	25	485	16.7	19	--	--	--	--	1080	73
21...	1100	29	475	13.8	27	2.9	2.1	5.0	1.6	942	74
24...	1315	29	465	15.5	14	--	--	--	--	866	68
27...	1040	31	475	14.4	13	--	--	--	--	1090	91
JUN											
01...	1620	40	385	16.0	17	2.6	3.0	5.6	1.2	602	65
03...	1230	39	395	15.1	12	--	--	--	--	856	90
08...	1005	37	435	16.6	23	2.4	2.4	4.8	1.1	963	96
08...	1145	38	460	18.3	25	--	--	--	--	966	99
08...	1255	38	460	19.2	23	2.3	1.6	3.9	1.3	975	100
08...	1410	38	480	20.5	22	--	--	--	--	887	91
08...	1545	36	475	21.0	22	2.8	2.7	5.5	1.4	775	71
08...	1730	36	485	19.0	26	--	--	--	--	920	84
08...	1845	33	510	20.4	26	2.8	2.5	5.3	1.6	1050	94
08...	2020	32	480	19.5	23	2.7	3.1	5.8	1.5	956	82
08...	2145	32	480	18.4	28	--	--	--	--	864	75
08...	2320	32	465	17.7	22	2.6	2.5	5.1	1.7	695	60
09...	0100	33	475	16.7	26	--	--	--	--	887	80
09...	0215	33	450	15.0	23	2.4	2.2	4.6	1.3	856	76
09...	0345	34	445	15.0	26	--	--	--	--	1080	92
09...	0515	34	435	16.3	28	2.2	2.4	4.6	1.2	745	68
09...	0655	35	435	13.8	29	--	--	--	--	997	94
09...	0825	36	435	16.1	28	2.1	2.3	4.4	1.2	953	93
09...	0955	38	435	16.9	28	--	--	--	--	813	83
09...	1130	38	445	16.5	27	2.5	2.2	4.7	1.3	982	101
09...	1300	38	445	18.4	17	--	--	--	--	941	97
09...	1420	36	465	20.6	25	2.3	2.6	4.9	1.5	1080	105
09...	1600	35	465	22.1	17	--	--	--	--	929	88
09...	1715	34	465	22.4	16	2.3	2.2	4.5	1.5	848	78
09...	1840	33	470	21.8	22	--	--	--	--	953	85
09...	2030	32	450	21.0	28	2.6	2.7	5.3	1.5	900	79
09...	2150	32	450	19.7	28	--	--	--	--	910	79
09...	2330	32	450	18.6	29	2.6	2.1	4.7	1.5	865	75
10...	0100	33	450	18.0	24	--	--	--	--	1430	127
10...	0220	34	450	17.1	24	2.4	2.3	4.7	1.5	985	90
10...	0345	34	435	16.4	26	--	--	--	--	950	87
10...	0510	34	435	15.9	23	2.3	1.8	4.1	1.2	868	79
10...	0635	36	415	15.5	25	--	--	--	--	890	87
10...	0805	36	415	15.4	27	2.2	1.5	3.7	1.1	909	88
10...	1000	38	405	15.7	23	2.4	1.9	4.3	1.2	1010	104
14...	1330	38	460	18.4	13	--	--	--	--	770	79
17...	1315	36	405	17.6	13	--	--	--	--	768	73
21...	1610	36	500	20.6	12	3.7	2.7	6.4	1.2	626	61
24...	1330	38	425	18.9	23	--	--	--	--	866	89
28...	1330	38	365	20.4	21	--	--	--	--	901	92
JUL											
01...	1415	38	475	18.3	17	--	--	--	--	926	95
06...	1245	42	405	21.0	11	1.9	2.2	4.1	1.3	689	78
08...	1330	40	425	21.6	15	--	--	--	--	631	68
12...	1400	41	405	26.6	13	--	--	--	--	619	69
16...	1100	40	405	18.0	17	--	--	--	--	705	76
19...	1545	38	435	23.0	58	2.3	2.0	4.2	1.4	813	83
22...	1500	37	410	22.0	34	--	--	--	--	759	76
26...	1645	35	370	25.0	27	--	--	--	--	655	62
29...	1415	34	400	28.2	25	--	--	--	--	568	52
AUG											
03...	1045	39	495	19.0	27	2.8	1.8	4.6	1.0	568	60
06...	1010	38	475	18.1	17	--	--	--	--	461	47
10...	0925	43	465	16.7	26	--	--	--	--	584	68
10...	1020	44	465	17.1	19	2.2	1.6	3.8	.03	564	67
10...	1120	44	465	18.0	21	--	--	--	--	537	64

12508840 DID 3 DRAIN NEAR SUNNYSIDE, WA--Continued

WATER QUALITY DATA MARCH 1976 TO MARCH 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
AUG , 1976											
10...	1220	44	465	18.9	20	2.5	1.7	4.2	.85	959	114
10...	1320	43	465	20.0	17	--	--	--	--	538	62
10...	1420	42	465	21.2	17	2.5	1.4	3.9	.71	636	72
10...	1520	41	470	22.1	12	--	--	--	--	501	55
10...	1620	41	470	22.3	12	2.4	2.2	4.6	.78	489	54
10...	1720	40	470	22.8	14	--	--	--	--	487	53
10...	1820	39	470	22.5	14	2.5	1.8	4.3	.85	508	53
10...	1920	38	475	22.1	15	--	--	--	--	495	51
10...	2020	38	480	21.7	13	3.0	1.6	4.6	.97	457	47
10...	2120	38	485	21.0	13	--	--	--	--	442	45
10...	2220	38	485	20.4	13	2.6	1.7	4.3	.80	454	47
10...	2320	38	485	20.0	12	--	--	--	--	533	55
11...	0020	38	485	19.2	11	2.5	1.5	4.0	.73	483	50
11...	0120	38	485	18.8	16	--	--	--	--	469	48
11...	0220	38	510	18.2	11	2.3	1.5	3.8	.68	528	54
11...	0320	38	465	17.6	14	--	--	--	--	498	51
11...	0420	38	465	17.4	13	2.2	1.4	3.6	.58	507	52
11...	0515	39	455	17.0	18	--	--	--	--	461	49
11...	0620	40	450	16.7	17	2.1	1.3	3.4	.61	508	55
11...	0720	40	450	16.6	20	--	--	--	--	554	60
11...	0820	40	450	16.6	20	2.1	1.4	3.5	.64	496	54
11...	1000	41	465	18.0	21	--	--	--	--	525	58
11...	1055	42	470	18.1	21	2.3	1.8	4.1	.74	520	59
11...	1150	42	480	19.0	17	--	--	--	--	432	49
11...	1250	41	480	20.3	22	2.3	1.6	3.9	.74	520	58
11...	1345	40	480	21.3	15	--	--	--	--	467	50
11...	1440	40	485	21.9	15	2.5	1.4	3.9	.77	511	55
11...	1545	40	485	22.7	14	--	--	--	--	479	52
11...	1620	39	485	22.6	19	2.5	1.5	4.0	.73	412	43
11...	1720	38	485	23.0	17	--	--	--	--	490	50
11...	1815	38	495	23.3	16	2.4	1.8	4.2	.77	501	51
11...	1910	37	495	23.0	12	--	--	--	--	462	46
11...	2010	36	495	22.5	15	2.6	2.2	4.8	.80	455	44
11...	2140	36	490	21.5	19	--	--	--	--	501	49
11...	2225	36	480	21.0	17	2.5	1.9	4.4	.93	443	43
11...	2315	36	485	20.7	16	--	--	--	--	433	42
12...	0025	37	485	19.9	12	2.4	1.7	4.1	.80	448	45
12...	0125	37	480	19.5	20	--	--	--	--	445	44
12...	0220	37	485	19.0	28	2.2	1.4	3.6	.87	447	45
12...	0325	37	465	18.5	20	--	--	--	--	424	42
12...	0445	38	460	18.0	22	2.1	1.1	3.2	.64	423	43
12...	0520	38	450	17.7	19	--	--	--	--	497	51
12...	0615	38	455	17.5	17	1.8	1.2	3.0	.64	442	45
12...	0715	39	455	17.4	20	--	--	--	--	416	44
12...	0810	40	450	17.4	22	2.0	1.2	3.2	.64	452	49
16...	1500	44	455	18.2	20	--	--	--	--	495	59
20...	0930	39	480	16.3	17	--	--	--	--	405	43
24...	1015	35	475	17.5	27	--	--	--	--	411	39
27...	1115	38	495	16.3	11	2.0	1.3	3.3	.87	286	29
31...	1100	40	450	17.7	88	--	--	--	--	690	75
SEP											
02...	1545	37	470	20.8	53	--	--	--	--	724	72
07...	1500	38	405	17.9	17	2.1	1.4	3.5	.87	247	25
09...	1300	41	485	15.5	18	--	--	--	--	310	34
15...	1415	42	460	18.0	13	--	--	--	--	378	43
17...	1215	41	495	16.0	15	--	--	--	--	297	33
20...	1645	40	490	--	7	--	--	--	--	323	35
23...	1330	40	530	18.0	5	2.4	2.1	4.5	.72	230	25
27...	1445	40	510	18.0	7	--	--	--	--	222	24
OCT											
01...	1345	38	540	16.6	11	--	--	--	--	312	32
04...	1715	34	555	14.9	8	2.6	1.9	4.5	.82	297	27
08...	1300	37	580	13.7	8	--	--	--	--	247	25
12...	1600	38	555	15.5	7	--	--	--	--	239	25
15...	1300	40	525	12.1	13	--	--	--	--	297	32
18...	1515	41	530	11.7	10	2.3	1.8	4.1	.64	381	42
22...	1345	25	800	12.5	26	--	--	--	--	416	28
NOV											
03...	1500	23	828	14.9	10	1.2	3.1	4.3	.31	110	6.8
08...	1615	22	787	13.4	15	--	--	--	--	65	3.9
13...	1115	22	796	10.3	15	--	--	--	--	147	8.7
15...	1300	22	696	9.0	15	--	--	--	--	114	6.8
22...	1400	21	688	9.1	20	--	--	--	--	157	8.9
26...	1040	14	633	6.6	20	--	--	--	--	305	12
30...	1100	15	698	6.4	20	4.8	2.2	7.0	1.1	218	8.8
DEC											
03...	1220	14	677	5.8	20	--	--	--	--	520	20
06...	1100	16	737	7.6	25	--	--	--	--	282	12
10...	1115	16	715	7.0	20	--	--	--	--	248	11

12508840 DID 3 DRAIN NEAR SUNNYSIDE, WA--Continued

WATER QUALITY DATA MARCH 1976 TO MARCH 1977

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	TEMPER- ATURE (DEG C)	TUR- BID- ITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	SUS- PENDED SEDI- MENT (MG/L)	SUS- PENDED SEDI- MENT DIS- CHARGE (T/DAY)
DEC , 1976											
13...	1345	17	806	9.3	20	5.7	3.7	9.4	1.4	198	9.1
17...	1045	15	678	7.1	20	--	--	--	--	225	9.1
20...	1315	15	677	7.0	20	--	--	--	--	196	7.9
23...	1100	15	647	7.6	20	--	--	--	--	225	9.1
27...	1330	17	795	9.1	20	4.8	3.7	8.5	1.2	190	8.7
30...	1115	16	708	7.8	15	--	--	--	--	181	7.8
JAN , 1977											
03...	1515	15	680	8.0	20	--	--	--	--	191	7.7
07...	1215	14	679	5.9	30	--	--	--	--	214	8.1
14...	1125	14	612	7.0	15	--	--	--	--	202	7.6
17...	1445	15	683	8.4	15	5.3	3.6	8.9	1.3	161	6.5
25...	1510	15	657	8.7	15	--	--	--	--	188	7.6
31...	1520	14	782	8.2	14	--	--	--	--	131	5.0
FEB											
08...	1300	15	797	9.6	15	5.5	3.0	8.5	1.4	173	7.0
15...	1715	14	775	10.7	9	--	--	--	--	157	5.9
22...	1300	16	690	10.3	10	6.0	3.5	9.5	1.4	152	6.6
MAR											
07...	1245	16	770	9.8	9	--	--	--	--	160	6.9
11...	1430	16	797	13.4	10	--	--	--	--	174	7.5
14...	1315	15	731	9.7	15	--	--	--	--	143	5.8
18...	1130	15	583	10.1	10	--	--	--	--	136	5.5
21...	1235	15	726	11.7	10	7.0	3.5	10	1.7	176	7.1
24...	1610	13	539	13.6	10	--	--	--	--	126	4.4

12508850 SULPHUR CREEK WASTEWAY NEAR SUNNYSIDE, WA

LOCATION.--Lat 46°15'03", long 120°01'07", in SW¼NW¼ sec.24, T.9 N., R.22 E., Yakima County, Hydrologic Unit 17030003, on left bank 1.6 mi (2.6 km) downstream from DID 3 Drain, 0.8 mi (1.3 km) upstream from mouth (on Yakima River), and 4.5 mi (7.2 km) south of Sunnyside.

DRAINAGE AREA.--155 mi^2 (401 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1976 to March 1977 (discontinued).

GAGE.--Water-stage recorder. Datum of gage 650 ft (198 m) from topographic map.

REMARKS.--Water-stage records good except those for Mar. 1-30, which are poor. Considerable regulation from inflow from Roza and Sunnyside Canal wasteways, and agricultural return flow. At extreme high stages in the Yakima River, backwater will occur.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed discharge, 675 ft^3/s (19.1 m^3/s) Mar. 26, 1976, gage height, 3.48 ft (1.061 m); minimum discharge, 49 ft^3/s (1.39 m^3/s) Mar. 29, 30, 1977, gage height, 1.04 ft (0.317 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1976 to March 1977, 497 ft^3/s (14.1 m^3/s) Oct. 18, gage height, 3.08 ft (0.939 m); minimum discharge, 49 ft^3/s (1.39 m^3/s), Mar. 29, 30, gage height, 1.04 ft (0.317 m).

DISCHARGE, IN CUBIC FEET PER SECOND OCTOBER 1976 TO MARCH 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	283	111	78	68	63	67						
2	286	110	78	68	63	63						
3	283	108	76	69	63	69						
4	305	104	76	69	62	64						
5	308	101	76	66	62	64						
6	327	100	75	65	62	63						
7	338	100	75	65	62	62						
8	311	98	79	65	62	63						
9	297	97	80	64	62	60						
10	300	97	78	64	65	59						
11	297	94	78	64	67	60						
12	308	94	78	64	67	88						
13	324	96	76	64	66	116						
14	331	93	75	64	65	123						
15	334	93	75	64	65	98						
16	338	93	76	64	65	64						
17	341	90	76	64	63	63						
18	386	89	75	66	62	69						
19	369	88	72	68	63	58						
20	302	87	72	66	63	57						
21	179	87	72	65	67	58						
22	132	87	71	65	64	56						
23	128	87	72	65	62	55						
24	128	86	71	65	61	55						
25	124	84	71	65	61	55						
26	121	82	72	64	59	53						
27	119	80	71	64	60	52						
28	119	80	70	64	75	51						
29	112	80	69	63	---	50						
30	111	79	69	63	---	50						
31	113	---	68	63	---	59						
TOTAL	7754	2775	2300	2017	1781	2024						
MEAN	250	92.5	74.2	65.1	63.6	65.3						
MAX	386	111	80	69	75	123						
MIN	111	79	68	63	59	50						
AC-FT	15380	5500	4560	4000	3530	4010						

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1975 to March 1977 (discontinued).

WATER QUALITY DATA, March to October 1975

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
11...	1525	65	750	11.5	--	40	7.0
17...	1210	214	750	8.5	5	1230	711
20...	1010	--	340	5.0	20	821	--
20...	1600	--	130	6.0	20	47	--
21...	1025	123	375	6.0	--	351	117
24...	1605	--	150	7.0	3	260	--
26...	1040	195	227	6.0	10	304	160
26...	1605	--	160	6.0	10	22	--
28...	0915	--	224	4.5	8	188	--
28...	1430	--	155	5.5	8	34	--
APR							
01...	1005	128	236	7.0	8	69	24
04...	1105	75	250	6.5	2	64	13
08...	1030	53	310	7.0	2	57	8.2
10...	1440	52	120	10.0	4	38	5.3
12...	1025	112	280	8.0	--	92	28
15...	1050	241	250	9.5	15	100	65
21...	1030	239	270	10.0	--	102	66
23...	1040	--	290	10.0	20	175	--
28...	1425	208	310	12.0	--	193	108
30...	1115	112	315	11.0	--	226	68
MAY							
05...	1425	--	325	11.0	50	265	--
07...	1625	--	390	15.0	40	430	--
14...	2000	--	380	17.0	40	248	--
16...	1700	--	320	17.0	30	186	--
23...	1505	--	320	16.0	40	234	--
25...	1200	--	330	15.0	50	282	--
29...	1900	280	340	18.0	--	428	324
31...	1930	--	340	18.0	40	318	--
JUN							
03...	1505	--	310	19.0	20	140	--
05...	1315	--	300	18.0	20	502	--
10...	1555	--	330	20.0	30	492	--
13...	1305	--	350	18.0	30	636	--
19...	1600	--	290	16.0	40	769	--
21...	1315	--	310	17.0	40	430	--
JUL							
22...	1515	537	350	21.8	--	621	900
28...	1530	365	390	22.1	--	651	642

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUL , 1975						
31...	1545	445	375	20.8	593	712
AUG						
04...	1515	481	345	21.2	801	1040
14...	1155	400	370	18.0	505	545
19...	1010	380	330	16.4	441	452
20...	1310	376	310	18.0	324	329
26...	0805	457	280	14.8	226	279
28...	0900	418	290	16.2	181	204
SEP						
02...	1415	445	280	17.2	111	133
09...	0900	330	320	14.4	146	130
11...	0905	280	350	16.4	175	132
16...	1435	258	350	17.7	164	114
18...	0800	288	350	13.1	192	149
23...	0900	369	310	13.8	133	133
25...	0930	320	330	14.0	111	96
OCT						
21...	1645	227	625	11.6	335	205

12508850 SULPHUR CREEK WASTEWAY NEAR SUNNYSIDE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
OCT											
01...	1400	299	350	16.3	10	--	--	--	--	152	123
04...	1730	327	340	14.6	8	1.8	.60	2.4	.29	202	178
08...	1315	311	350	14.1	6	--	--	--	--	159	134
12...	1615	320	348	15.5	8	--	--	--	--	179	155
15...	1315	344	330	12.0	10	--	--	--	--	198	184
18...	1530	366	330	11.5	8	1.8	.76	2.6	.21	184	182
22...	1400	162	588	11.5	7	--	--	--	--	94	41
NOV											
03...	1230	110	688	13.6	4	1.2	.70	1.9	.27	50	15
08...	1630	102	685	13.1	4	--	--	--	--	44	12
12...	1345	97	685	10.6	4	--	--	--	--	36	9.4
15...	1315	93	599	8.5	6	--	--	--	--	34	8.5
22...	1400	87	606	8.0	6	--	--	--	--	39	9.2
26...	1020	82	568	6.0	4	--	--	--	--	47	10
30...	1045	80	577	4.6	6	5.7	.64	6.3	.26	49	11
DEC											
03...	1200	79	590	4.8	6	--	--	--	--	50	11
06...	1115	78	666	7.0	5	--	--	--	--	59	12
10...	1100	78	617	6.3	8	--	--	--	--	55	12
13...	1400	76	704	8.5	7	5.9	.89	6.8	.40	46	9.4
17...	1100	76	600	6.8	8	--	--	--	--	63	13
20...	1330	72	579	6.0	9	--	--	--	--	56	11
23...	1100	71	546	6.4	8	--	--	--	--	99	19
27...	1345	70	683	8.5	7	5.8	.90	6.7	.31	51	9.6
30...	1105	68	598	7.2	6	--	--	--	--	53	9.7
JAN											
03...	1530	68	598	7.4	8	--	--	--	--	144	26
07...	1230	65	571	4.6	10	--	--	--	--	66	12
14...	1135	63	519	6.2	8	--	--	--	--	62	11
17...	1435	65	562	7.8	5	6.4	.90	7.3	.39	50	8.8
25...	1615	65	556	7.4	8	--	--	--	--	71	12
31...	1555	63	686	7.3	6	--	--	--	--	58	9.9
FEB											
08...	1325	60	687	8.8	6	6.3	.85	7.1	.41	68	11
15...	1740	67	675	10.0	5	--	--	--	--	55	9.9
22...	1335	64	590	10.2	4	6.2	.78	7.0	.31	37	6.4
MAR											
07...	1310	63	671	10.2	4	--	--	--	--	35	6.0
11...	1500	60	675	11.9	4	--	--	--	--	32	5.2
14...	1330	126	396	8.0	12	--	--	--	--	328	112
18...	1150	60	517	9.8	4	--	--	--	--	23	3.7
21...	1305	59	596	10.5	4	6.0	1.2	7.2	.24	20	3.2
24...	1630	51	512	13.0	2	--	--	--	--	9	1.2

12508990 YAKIMA RIVER AT MABTON, WA

LOCATION.--Lat 46°13'53", long 119°59'54", in SW¼SW¼ sec.30, T.9 N., R.23 E., Yakima County, Hydrologic Unit 17030003, on right bank under county highway bridge, at east boundary of Yakima Indian Reservation, 1.1 mi (1.8 km) north of Mabton, and at mile 59.8 (96.2 km).

DRAINAGE AREA.--5,359 mi² (13,880 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 643 ft (196.0 m), from topographic map. Prior to Oct. 1, 1976 at datum 10 ft (3.05 m) higher.

REMARKS.--Water-discharge records fair except those for period of no gage-height record, Jan. 29 to Apr. 1, which are poor. Flow affected by storage in five reservoirs and by diversions above station for irrigation above and below station of about 424,000 acres (1,720 km²) and by return flow from irrigated area.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,200 ft³/s (1,050 m³/s) Jan. 17, 1974, gage height, 25.30 ft (7.711 m) present datum; minimum daily, 320 ft³/s (9.06 m³.s) Mar. 25, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,880 ft³/s (81.6 m³/s) Jan. 20; maximum gage height, 11.81 ft (3.600 m) Oct. 19; minimum daily discharge, 320 ft³/s (9.06 m³/s) Mar. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1900	1920	1570	1590	1280	850	383	870	951	834	906	1640
2	1920	1940	1570	1490	1270	810	369	1320	1460	772	870	1530
3	2000	1970	1560	1400	1250	780	355	1280	1670	764	789	1590
4	2070	1950	1570	1290	1240	750	390	1060	1680	915	732	1740
5	2120	1940	1600	1230	1180	730	460	951	1700	1020	716	1730
6	2280	1920	1580	1000	1120	780	580	897	1970	1030	772	1680
7	2270	1860	1540	1100	1020	740	724	879	1800	1030	980	1520
8	2220	1830	1540	1150	950	720	764	933	1670	970	1060	1370
9	2210	1800	1580	1150	950	670	879	990	1470	879	1000	1270
10	2210	1780	1620	1150	950	570	1360	990	1200	861	825	1310
11	2190	1720	1610	1180	750	550	1130	960	1010	960	748	1350
12	2180	1700	1590	1200	1000	600	834	1080	933	942	740	1390
13	2190	1670	1570	1220	1180	650	540	1000	1000	861	798	1360
14	2080	1650	1560	1220	1290	610	492	852	1140	834	852	1280
15	1910	1650	1540	1240	1250	580	644	825	1070	915	897	1260
16	2390	1600	1530	1260	1210	550	540	834	970	843	879	1320
17	2220	1470	1520	1270	1120	530	492	852	888	834	816	1410
18	2130	1560	1540	1350	920	500	508	825	897	1030	897	1420
19	2680	1640	1540	1800	1050	430	468	789	888	1080	1100	1450
20	2670	1700	1530	2740	1000	400	432	772	951	1010	990	1380
21	2590	1720	1500	2560	950	410	432	780	951	861	879	1310
22	2570	1700	1480	2250	920	420	425	780	924	825	906	1300
23	2310	1680	1530	1980	850	370	411	870	906	816	1020	1370
24	2180	1670	1500	1820	800	340	404	1040	906	780	1130	1570
25	2080	1670	1450	1500	700	320	439	1070	812	798	1300	1710
26	[illegible]	1650	1400	1400	700	330	789	897	748	798	1380	1810
27	2090	1670	1450	1440	740	330	1050	807	798	825	1400	1850
28	1940	1650	1560	1370	900	350	798	861	843	861	1360	1820
29	2130	1570	1760	1310	---	[illegible]	596	951	789	843	1360	1770
30	2030	1580	1730	1290	---	400	516	1030	825	843	1470	1800
31	1960	---	1680	1290	---	390	---	980	---	852	1560	---
TOTAL	67800	51830	48300	45240	28540	16830	18204	29025	33820	27486	31132	45310
MEAN	2187	1728	1558	1459	1019	543	607	936	1127	887	1004	1510
MAX	2680	1970	1760	2740	1290	850	1360	1320	1970	1080	1560	1850
MIN	1900	1470	1400	1000	700	320	355	772	748	764	716	1260
AC-FT	134500	102800	95800	89730	56610	33380	36110	57570	67080	54520	61750	89870

CAL YR 1976 TOTAL 1418720 MEAN 3876 MAX 12200 MIN 1390 AC-FT 2814000
WTR YR 1977 TOTAL 443517 MEAN 1215 MAX 2740 MIN 320 AC-FT 879700

12508990 YAKIMA RIVER AT MABTON, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1971, 1974 to September 1976 (discontinued).

QUALITY WATER DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
11...	1500	5410	120	7.0	--	54	789
17...	1145	4740	195	--	5	40	512
20...	1055	4190	195	6.0	4	44	498
24...	1010	3670	230	6.5	6	34	337
26...	1015	3510	237	6.5	5	76	720
28...	0845	3010	206	4.5	5	29	236
APR							
01...	0940	3190	220	7.0	5	28	241
04...	1020	3010	210	6.5	2	34	276
08...	1000	2700	219	8.5	4	24	175
10...	0955	2620	215	9.0	2	25	177
15...	1015	4440	175	8.5	3	48	575
21...	0955	4650	170	10.0	--	56	703
23...	1010	4160	170	11.0	8	41	461
28...	1455	4470	135	11.[illegible]	10	79	953
30...	1140	3550	195	12.[illegible]	10	37	355
MAY							
05...	1500	4550	175	11.0	9	67	823
07...	1655	3440	190	14.0	8	45	418
14...	2035	9270	150	13.0	20	166	4160
16...	1735	12600	130	12.0	30	205	6970
23...	1535	11500	120	13.0	20	108	3350
25...	1230	11900	125	12.0	20	70	2250
29...	1925	8030	140	15.0	10	77	1670
31...	2000	3530	135	13.0	20	78	1800
JUN							
03...	1525	12200	115	15.0	20	156	5140
05...	1345	9360	130	15.0	30	102	2580
10...	1625	6510	140	16.0	10	94	1650
13...	1335	6650	140	17.0	10	78	1400
19...	1625	5390	150	16.0	--	80	1160
21...	1345	5470	150	17.0	10	62	916
25...	1230	4830	160	16.0	10	50	652
28...	1230	4460	160	15.0	--	66	795
JUL							
02...	1250	2150	245	18.0	10	63	366
04...	1230	3100	230	18.0	20	57	477
09...	1245	4510	165	19.0	10	66	804
12...	1315	4160	170	19.0	10	54	607
16...	1315	2590	210	19.0	10	73	510
18...	1305	1850	250	19.9	10	34	170
22...	1545	1740	265	22.9	10	38	179
28...	1600	1240	290	24.6	10	42	141
31...	1615	1560	290	20.6	10	46	194
AUG							
04...	1545	1630	280	22.4	10	51	224
14...	1130	1320	300	20.8	7	37	132
19...	1025	3090	265	19.1	5	53	442
20...	1330	2860	170	19.6	6	59	456
26...	0900	3190	230	17.4	3	38	327
SEP							
02...	1445	2710	250	17.4	3	24	176
09...	1430	2070	290	19.4	2	19	106
16...	1400	1680	310	19.0	2	24	109
23...	1400	1960	290	17.0	2	23	122
MAR , 1976							
02...	1440	3170	200	4.6	3	32	274
09...	1325	2450	255	7.9	4	4	26
16...	1510	3000	195	8.8	6	13	105
22...	1235	3990	174	6.9	7	27	291
25...	1040	3600	189	7.6	24	198	1930
30...	1345	3720	182	9.0	10	24	241
APR							
01...	1000	5180	151	7.4	6	71	993
05...	1105	3510	134	10.4	3	53	502
08...	1255	7050	120	9.0	8	133	2530
12...	1330	10400	137	9.2	14	167	4690
15...	1140	9010	132	7.2	6	87	2120
20...	1800	5370	157	10.8	5	78	1130
23...	1300	5750	158	9.7	4	40	621
26...	1240	5320	134	10.0	3	46	661
29...	1120	3820	156	11.8	4	46	474
MAY							
04...	1300	8550	134	11.8	12	94	2170
06...	1020	6830	132	11.7	6	81	1490
11...	1200	10600	136	11.0	12	125	3580
14...	1030	7920	119	13.1	9	90	1930
20...	1030	6170	130	11.7	4	66	1100
25...	1230	6870	113	12.1	4	68	1260
28...	1120	6370	135	12.3	6	70	1200

12508990 YAKIMA RIVER AT MABTON, WA--Continued

QUALITY WATER DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUN , 1976							
01...	1515	5350	110	12.6	4	71	1030
03...	1300	4020	140	14.0	4	64	695
07...	1100	1780	245	17.1	5	49	235
11...	1215	2770	209	17.5	7	49	366
15...	1415	1860	235	17.0	8	42	211
18...	1130	2020	158	18.8	5	64	487
21...	1045	4650	146	16.7	5	133	1670
25...	1315	4280	143	16.2	6	59	682
29...	1115	3570	169	19.5	5	50	482
JUL							
02...	1015	3850	147	15.6	5	50	520
07...	1145	3520	165	19.9	5	60	570
09...	1115	4780	153	19.2	5	73	942
12...	1435	4760	130	17.4	4	76	977
15...	1315	2090	188	19.9	5	48	375
20...	1200	1800	195	21.2	17	47	228
23...	1115	1400	215	21.0	16	44	166
27...	1230	1590	255	21.3	15	47	202
30...	1145	1300	260	20.8	25	--	--
AUG							
02...	1235	1820	247	20.6	15	--	--
05...	1200	1780	233	20.7	8	36	173
09...	1430	2950	205	19.4	8	43	342
16...	1530	2550	240	17.8	9	34	234
19...	1130	2530	198	17.4	6	27	184
23...	1200	1900	260	19.4	6	28	144
26...	1215	2030	275	18.6	5	24	132
30...	1345	2240	295	19.8	6	30	101
SEP							
03...	1130	1680	275	19.3	6	29	132
08...	1115	2010	205	16.3	7	24	130
10...	1000	1930	255	15.0	6	20	104
14...	1530	1970	235	16.1	6	25	133
17...	1515	2140	250	17.2	5	24	139
21...	1100	2010	235	--	5	24	130
23...	1015	1920	205	18.5	4	22	114
28...	1330	2010	200	17.6	4	22	119

12508997 GRANDVIEW DRAIN AT CHASE ROAD NEAR GRANDVIEW, WA

LOCATION.--Lat 46°13'46", long 119°55'28", in NW¼NE¼ sec.34, T.9 N., R.23 E., Yakima County, Hydrologic Unit 17030003, 1.2 mi (1.9 km) south of Grandview.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
12...	1350	5.0	605	12.0	1	66	.89
18...	0945	6.5	630	--	3	38	.67
20...	1035	6.7	630	9.5	3	41	.74
24...	1055	6.5	640	10.0	2	33	.58
26...	1110	6.3	640	9.5	2	47	.80
28...	0940	6.5	640	8.0	2	57	1.0
APR							
01...	1020	7.7	390	8.5	8	179	3.7
04...	1125	14	315	7.0	3	221	8.7
08...	1055	17	320	9.0	2	192	8.8
10...	1055	12	275	9.5	4	132	4.6
15...	1110	8.0	390	11.0	2	65	1.4
21...	1105	14	320	12.0	--	132	5.0
23...	1110	8.4	400	12.0	8	57	1.3
28...	1355	9.6	350	15.0	20	99	2.6
30...	1050	8.0	350	13.0	20	77	1.7
MAY							
05...	1355	8.8	340	13.0	20	134	3.2
07...	1600	10	370	14.0	6	166	4.5
14...	1935	8.0	440	14.0	30	233	5.0
16...	1630	7.0	420	16.0	20	205	3.9
23...	1435	6.7	420	16.0	30	228	4.1
25...	1130	7.7	400	16.0	40	215	4.5
29...	1030	7.2	490	17.0	40	225	4.4
31...	1905	6.7	480	19.0	50	237	4.3
JUN							
03...	1430	7.2	420	19.0	30	182	3.5
05...	1245	7.7	375	18.0	50	242	5.0
10...	1530	10	360	19.0	30	313	8.5
13...	1230	14	390	18.0	30	228	9.0
19...	1535	15	330	16.0	30	308	13
21...	1250	16	310	19.0	30	263	12
25...	1300	21	240	18.0	30	304	18
27...	1300	18	280	16.0	30	222	11
JUL							
02...	1320	12	350	19.0	30	212	7.3
04...	1300	14	375	19.0	30	227	8.9
09...	1315	9.2	460	18.0	30	289	7.2
12...	1445	11	385	19.0	30	335	10
16...	1245	20	380	18.0	40	367	20
18...	1240	20	260	19.4	--	377	21
22...	1500	19	290	21.8	30	488	25
28...	1515	15	290	23.6	25	352	14
31...	1530	17	320	20.4	30	294	14
AUG							
04...	1500	15	330	21.6	--	251	10
14...	1215	20	301	19.9	8	249	14
19...	1205	21	270	18.8	8	199	11
21...	0945	20	270	19.0	5	146	11
26...	0945	24	300	16.6	2	462	30
28...	0930	21	340	16.8	2	89	5.2
SEP							
02...	1420	23	320	14.0	4	68	4.3
09...	0940	25	280	16.7	2	86	5.9
11...	0930	25	300	17.5	2	63	4.3
16...	1500	32	290	18.3	2	83	7.2
18...	0830	35	300	14.0	3	63	6.0
23...	0915	30	320	14.3	2	57	4.6
25...	1000	26	340	15.0	2	55	3.9
OCT							
21...	1455	7.5	575	13.6	5	63	1.3
MAR , 1976							
02...	1250	4.0	590	12.0	4	70	.76
09...	1250	4.0	810	13.9	5	59	.64
16...	1415	4.0	560	15.0	3	40	.43
22...	1210	4.0	630	11.0	4	79	.85
25...	1020	4.5	650	11.0	4	33	.40
30...	1315	4.5	600	16.5	2	16	.19
APR							
01...	0945	17	248	8.6	16	79	3.6
05...	1045	14	248	11.0	11	259	9.8
08...	1235	16	245	11.4	7	194	8.4
12...	1300	13	290	12.1	15	175	6.1
15...	1115	15	272	10.7	11	288	12
20...	1115	9.5	280	14.0	6	192	4.9
23...	1315	9.0	331	14.0	5	593	14
26...	1220	9.0	319	11.0	6	160	3.9
29...	1105	9.0	336	13.7	8	245	6.0
MAY							
04...	1345	13	293	16.6	14	498	17

12508997 GRANDVIEW DRAIN AT CHASE ROAD NEAR GRANDVIEW, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAY , 1976							
06...	0950	16	210	12.4	12	418	18
11...	1215	14	237	15.3	18	362	14
14...	1045	12	272	14.0	22	375	12
20...	1015	14	266	13.3	14	424	16
25...	1300	22	220	14.6	8	766	46
28...	1135	28	231	14.5	16	453	34
JUN							
02...	1230	38	207	15.0	12	652	67
04...	1030	30	182	14.1	8	68	5.5
07...	1045	28	180	16.7	10	496	37
11...	1230	15	273	16.7	20	375	15
15...	1430	14	305	16.2	24	434	16
18...	1130	13	267	18.6	17	408	14
21...	1030	15	274	16.6	19	381	15
25...	1330	14	281	18.1	15	469	18
29...	1130	14	295	19.4	21	--	--
JUL							
02...	1030	15	276	15.6	21	690	28
07...	1200	16	235	19.4	22	--	--
09...	1130	22	223	19.1	14	875	52
12...	1520	19	218	19.7	12	479	25
15...	1210	17	255	19.9	18	423	19
20...	1215	14	225	20.6	13	778	29
23...	1130	15	225	18.1	32	516	21
27...	1245	18	295	20.1	34	457	22
30...	1200	16	305	20.6	35	466	20
AUG							
02...	1215	19	327	20.0	35	468	24
05...	1100	21	280	19.5	32	492	28
09...	1135	24	270	18.5	14	452	29
16...	1630	39	245	18.2	22	631	66
19...	1115	35	260	16.6	12	323	31
23...	1145	29	253	19.6	13	266	21
26...	1200	38	255	18.3	6	193	20
30...	1330	38	250	20.2	11	230	24
SEP							
03...	1145	28	270	19.0	10	156	12
08...	1130	28	255	16.4	12	153	12
10...	1015	30	295	15.0	10	119	9.6
15...	1430	35	225	18.0	13	155	15
17...	1530	28	290	17.3	12	118	8.9
21...	1115	32	255	--	10	207	18
23...	1030	27	300	18.2	6	161	12
28...	1345	29	295	18.1	11	150	12

12509492 WAMBA DRAIN AT PROSSER, WA

LOCATION.--Lat 46°12'53", long 119°16'44", in NE¼NW¼ sec.2, T.8 N., R.24 E., Benton County, Hydrologic Unit 17030003, 0.5 mi (0.8 km) northwest of Prosser.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
12...	1320	1.0	730	10.0	2	18	.05
18...	1015	1.0	780	6.5	--	21	.06
20...	1120	1.0	720	8.5	2	46	.12
24...	1140	1.0	710	10.0	2	9	.02
26...	1150	1.0	750	7.0	--	43	.12
28...	1040	1.0	650	4.0	1	10	.03
APR							
01...	1320	1.0	420	11.5	3	82	.22
04...	1210	1.0	340	6.0	3	67	.18
08...	1145	1.0	390	10.5	2	33	.09
10...	1145	1.0	388	10.5	4	109	.29
15...	1145	1.0	310	11.0	--	31	.08
21...	1145	1.0	310	12.0	--	99	.27
23...	1205	1.0	328	13.0	30	133	.36
JUN							
19...	1445	1.5	350	17.0	30	67	.27
23...	1645	1.5	365	20.0	10	32	.13
25...	1430	1.5	345	18.0	10	42	.17
27...	1700	2.5	368	17.0	10	49	.33
JUL							
02...	1715	2.5	450	20.0	10	38	.26
04...	1700	2.5	480	20.0	20	67	.45
09...	1715	1.5	460	20.0	20	346	1.4
12...	1100	1.5	460	21.0	10	80	.32
16...	0945	7.0	390	16.0	20	67	1.3
18...	1045	6.5	370	17.8	10	58	1.0
22...	1145	6.5	400	21.8	15	59	1.0
28...	1200	2.5	390	23.8	20	57	.38
31...	1215	3.5	360	20.4	30	82	.77
AUG							
04...	1145	4.5	400	21.8	25	71	.86
09...	1335	7.0	440	21.2	6	94	1.8
14...	1405	5.0	400	23.5	9	104	1.4
21...	0910	8.0	490	17.2	5	59	1.3
26...	1145	6.5	550	18.5	2	43	.75
SEP							
02...	1045	6.5	490	15.8	3	31	.54
09...	1115	4.5	500	17.6	1	34	.41
17...	0930	7.0	450	14.7	2	28	.53
23...	1050	6.5	420	15.5	3	25	.44
OCT , 1975							
21...	1400	6.5	625	11.8	5	37	.65
MAR , 1976							
02...	1210	1.0	540	6.2	4	40	.11
09...	1120	1.0	840	11.0	5	31	.08
16...	1340	1.0	670	14.3	5	34	.09
22...	1145	1.0	700	9.6	3	19	.05
25...	1010	1.5	395	8.4	75	250	1.0
30...	1300	11	233	15.0	67	267	7.9
APR							
01...	0930	12	252	5.8	22	110	3.6
05...	1025	3.5	190	12.2	10	147	1.4
08...	1145	2.5	216	11.4	10	98	.66
12...	1250	3.5	272	12.9	23	129	1.2
15...	1100	3.5	294	10.4	22	164	1.5
20...	1050	5.0	278	14.5	13	330	4.6
23...	1330	4.5	243	14.1	10	329	4.0
26...	1150	4.0	288	12.4	10	177	1.9
29...	1025	3.5	365	14.3	6	110	1.1
MAY							
04...	1400	3.0	411	18.0	6	49	.40
06...	0935	3.0	365	12.4	7	40	.32
11...	1245	3.0	277	18.0	12	106	.86
14...	1100	3.5	350	15.5	22	133	1.3
20...	1000	3.5	353	13.6	20	113	1.1
25...	1315	3.5	408	16.4	5	127	1.2
28...	1155	4.0	403	16.1	11	68	.73
JUN							
02...	1245	6.0	370	17.1	13	78	1.3
04...	1045	6.5	425	15.1	11	65	1.1
07...	1030	5.5	315	17.0	12	52	.77
11...	1245	11	305	16.6	20	54	1.6
15...	1445	11	305	16.9	8	25	.74
18...	1200	12	290	19.9	7	23	.75
21...	1015	12	325	16.4	8	26	.84
25...	1345	15	335	18.9	10	30	1.2
29...	1145	17	355	20.4	35	89	4.1
JUL							
02...	1045	18	320	16.1	20	56	2.7
07...	1215	15	345	19.9	12	39	1.6
09...	1145	15	350	20.0	12	42	1.7

12509492 WANDA DRAIN AT PROSSER, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUL , 1976							
12...	1540	10	295	21.0	11	69	2.1
15...	1055	16	325	18.1	5	35	1.5
20...	1230	13	305	20.7	9	20	.70
23...	1215	9.5	275	21.1	16	35	.90
27...	1300	8.5	360	19.9	17	37	.85
30...	1300	8.5	355	21.0	20	52	1.2
AUG							
02...	1145	6.5	340	20.6	23	63	1.1
05...	1030	9.0	370	19.1	17	50	1.2
09...	1115	11	355	19.0	18	97	2.9
16...	1045	8.0	405	18.3	15	63	1.6
19...	1100	6.5	420	16.0	14	68	1.2
23...	1100	7.0	365	19.1	12	53	1.0
26...	1115	9.0	380	16.5	11	43	1.0
30...	1300	9.0	365	20.0	5	35	.85
SEP							
03...	1200	7.0	325	18.7	8	31	.59
08...	1145	8.0	305	18.2	15	30	.65
10...	1030	10	410	14.0	12	48	1.3
15...	1445	10	385	18.6	10	39	1.1
17...	1530	8.0	395	--	11	40	.86
21...	1130	10	425	--	8	37	1.0
23...	0845	9.0	425	14.0	6	34	.83
28...	1400	7.0	445	18.9	11	48	.91

12509496 SHELBY DRAIN AT SHELBY ROAD, AT PROSSER, WA

LOCATION.--Lat 46°13'19", long 119°15'24", in SW¼NE¼ sec.36, T.9 N., R.24 E., Benton County, Hydrologic Unit 17030003, 1.0 mi (1.6 km) northeast of Prosser.

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
18...	1045	.10	790	5.5	2	223	.06
20...	1135	.20	780	6.5	7	19	.01
24...	1205	.10	750	8.5	2	20	.01
26...	1210	.10	810	4.5	1	23	.01
28...	1050	.10	320	3.0	9	44	.01
APR							
01...	1330	1.1	270	10.0	1	25	.07
04...	1225	1.1	295	5.0	2	42	.12
08...	1200	.80	310	9.0	1	16	.03
10...	1200	.70	300	10.0	40	29	.05
15...	1210	7.6	260	9.5	25	450	9.6
21...	1205	7.6	285	12.0	--	296	6.1
23...	1215	12	280	12.0	40	729	24
28...	1255	14	270	12.0	45	1290	49
MAY							
01...	1010	7.0	300	11.0	50	1260	24
05...	1305	7.0	300	12.0	50	762	14
08...	1950	7.0	350	15.0	40	740	14
14...	1035	8.0	310	17.0	40	1240	27
18...	1350	13	320	16.0	40	896	31
23...	1335	10	310	--	50	973	26
29...	1725	7.6	330	19.0	40	965	20
JUN							
01...	1350	7.6	340	18.0	30	1340	27
03...	1335	5.5	320	--	40	1300	20
06...	1545	12	270	20.0	50	990	32
10...	1435	6.5	320	19.0	40	939	16
16...	1605	6.5	280	19.0	30	704	12
23...	1635	12	280	19.0	50	596	19
27...	1645	7.0	270	17.0	40	560	10
JUL							
22...	1200	6.5	305	20.9	35	419	7.4
28...	1215	4.0	280	22.9	35	547	5.9
31...	1230	5.0	290	19.1	40	436	5.9
AUG							
04...	1200	4.0	310	20.2	45	336	3.6
14...	1420	3.0	280	21.5	16	385	3.1
19...	1340	6.0	325	19.6	20	367	5.9
21...	0845	11	320	17.3	10	306	9.1
26...	1200	6.5	360	18.3	15	237	4.2

12509400 SHELBY DRAIN AT SHELBY ROAD, AT PROSSER, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
SEP., 1975							
02...	1100	23	320	15.7	6	135	8.4
09...	1125	15	330	17.6	7	149	6.0
17...	0945	6.5	440	16.9	2	80	1.4
23...	1105	17	380	16.0	5	90	4.1
OCT							
21...	1320	1.5	460	11.2	6	214	.87
MAR., 1976							
02...	1115	1.0	710	7.6	1	9	.02
09...	1105	1.0	921	8.3	2	12	.03
APR							
01...	0915	1.0	260	4.8	18	47	.13
05...	1010	3.0	169	11.0	17	240	1.9
08...	1105	2.5	168	10.6	26	252	1.7
12...	1235	2.5	167	12.2	43	231	1.6
15...	1045	4.5	170	10.0	24	772	9.4
20...	1035	3.0	230	14.1	22	520	4.2
23...	1345	9.5	217	14.2	34	1040	27
26...	1145	5.5	186	11.0	20	1150	17
29...	1015	3.0	200	12.8	24	674	5.5
MAY							
04...	1415	3.0	202	18.5	19	430	3.5
06...	0945	3.0	228	12.7	23	600	4.9
11...	1300	9.0	186	16.7	24	1430	35
14...	1115	9.5	152	13.0	40	1100	28
20...	0945	9.5	247	12.0	32	1330	34
25...	1330	5.5	261	16.0	19	670	9.9
28...	1200	10	227	14.2	28	595	16
JUN							
02...	1300	6.0	212	15.8	16	671	11
04...	1100	6.0	209	14.1	16	567	9.2
07...	1015	7.0	230	16.5	18	595	11
11...	1300	3.0	295	16.5	32	442	3.6
15...	1500	3.0	320	17.0	31	447	3.6
18...	1215	5.0	215	18.7	33	473	6.4
21...	1000	5.5	260	17.0	25	440	6.5
25...	1400	4.5	285	17.8	32	713	8.7
29...	1245	3.0	272	19.8	28	545	4.4
JUL							
02...	1100	2.5	295	16.8	28	419	2.8
07...	1230	6.5	305	20.3	38	421	7.4
09...	1200	5.0	247	19.5	26	392	5.3
12...	1545	5.0	260	21.9	19	384	5.2
15...	1045	6.0	240	17.6	29	361	5.8
20...	1245	5.0	219	20.3	37	336	4.5
23...	1230	5.0	203	21.0	36	557	7.5
27...	1315	4.0	307	20.2	26	338	3.7
30...	1315	3.0	300	21.2	25	334	2.7
AUG							
02...	1130	5.0	287	20.5	22	318	4.3
05...	1015	5.0	295	19.0	22	347	4.7
09...	1105	5.5	270	18.2	27	464	6.9
16...	1700	3.5	325	17.6	12	185	1.7
19...	1045	2.5	325	15.5	11	174	1.2
23...	1045	4.0	375	18.7	9	113	1.2
26...	1100	4.0	325	16.1	--	173	1.9
30...	1245	4.0	480	19.3	17	152	1.6
SEP							
03...	1215	4.0	310	18.3	26	172	1.9
08...	1200	4.0	295	15.0	22	243	2.6
10...	1045	6.0	285	14.6	23	246	4.0
15...	1445	4.0	415	18.0	33	262	2.8
17...	1545	4.0	295	--	37	322	3.5
21...	1145	3.5	365	--	15	207	2.0
24...	0945	3.5	305	16.0	19	201	1.9
28...	1415	3.5	360	10.1	16	167	1.6

12509700 SPRING CREEK AT HESS ROAD NEAR PROSSER, WA

LOCATION.--Lat 46°14'02", long 119°41'02", in NW¼SW¼ sec.27, T.9 N., R.25 E., Benton County, Hydrologic Unit 17030003, 4.0 mi (6.4 km) northeast of Prosser.

DRAINAGE AREA.--44.7 mi² (115.8 km²).

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR., 1975							
12...	1200	20	800	8.0	1	21	1.1
18...	1115	20	800	8.5	1	26	1.4
20...	1235	20	790	8.5	1	11	.59
24...	1255	19	775	11.0	3	13	.67
26...	1310	19	800	9.0	--	7	.36
28...	1110	21	780	6.5	6	22	1.2
APR							
01...	1430	60	230	10.0	3	334	54
04...	1305	90	160	7.0	6	618	150
10...	1255	47	230	10.0	2	123	16
15...	1315	35	200	10.5	6	98	9.3
21...	1300	37	255	13.0	--	66	6.6
23...	1315	45	240	13.0	20	237	29
28...	1200	41	230	12.0	20	119	13
MAY							
01...	1045	37	285	12.0	20	98	9.8
05...	1155	36	270	12.0	30	120	12
08...	1920	36	255	16.0	30	280	27
14...	1005	36	290	18.0	30	297	29
18...	1320	36	275	19.0	30	343	33
23...	1305	36	250	17.0	50	566	55
29...	1655	38	250	16.0	50	512	53
JUN							
01...	1315	39	270	18.0	40	531	56
03...	1305	39	260	19.0	40	541	57
06...	1520	39	265	20.0	50	613	65
10...	1405	40	260	20.0	40	594	64
16...	1530	8.9	260	19.0	40	600	15
19...	1400	40	280	16.0	40	536	58
23...	1530	31	250	19.0	40	556	46
25...	1515	42	260	19.0	30	416	47
27...	1615	40	250	17.0	40	387	42
JUL							
02...	1630	55	310	20.0	40	541	80
04...	1615	40	280	19.0	5	575	62
09...	1630	37	310	20.0	40	748	75
12...	1145	42	310	20.0	30	490	56
16...	1030	43	270	17.0	40	448	52
18...	1030	63	250	18.2	35	421	72
22...	1230	115	210	22.1	35	512	159
28...	1045	62	260	24.2	40	381	64
31...	1300	63	270	18.4	45	383	65
AUG							
06...	1230	73	260	20.6	35	290	57
14...	1500	66	270	22.0	26	345	61
19...	1600	78	250	20.2	18	230	48
20...	1160	78	250	18.6	10	183	39
28...	1215	65	260	18.4	6	114	20
SEP							
02...	1120	50	290	15.6	7	87	12
09...	1200	60	310	16.1	2	60	9.7
17...	1015	38	330	15.5	3	61	6.3
23...	1130	95	300	10.1	4	66	17
OCT							
21...	1240	50	550	9.0	6	51	6.8
MAR., 1976							
02...	1055	2.0	750	6.6	1	8	.04
09...	1025	2.2	650	7.8	1	3	.02
16...	1310	2.1	790	12.4	1	5	.03
20...	1120	1.9	800	9.8	1	15	.08
25...	0945	3.6	690	7.8	6	11	.11
APR							
01...	0915	36	251	6.0	24	369	36
05...	0950	57	187	10.6	8	110	17
08...	1050	32	180	10.6	9	110	9.5
12...	1220	41	215	12.3	24	120	13
15...	1035	50	190	9.1	21	207	28
20...	1020	52	180	12.2	14	240	34
23...	1400	53	205	11.9	14	178	25
26...	1125	52	162	13.4	9	148	21
29...	1000	40	196	11.4	11	183	20
MAY							
04...	1630	19	276	10.0	32	195	10
06...	0910	24	233	11.0	31	264	17
11...	1315	16	183	17.3	28	363	15
14...	1130	31	216	14.9	27	622	52
20...	0930	37	209	17.0	23	868	88
25...	1315	33	294	15.8	36	706	63
28...	1215	60	213	16.7	39	644	104
JUN							
02...	1315	65	200	15.0	32	694	122

12509700 SPRING CREEK AT HESS ROAD NEAR PROSSER, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUN , 1976							
04...	1115	40	267	14.2	27	739	80
07...	1000	97	205	16.1	15	747	196
11...	1315	32	255	17.0	63	766	66
15...	1515	33	260	17.3	33	670	60
18...	1230	36	205	19.7	34	721	70
21...	0950	58	202	17.0	30	871	136
25...	1415	49	220	18.0	40	648	86
29...	1300	39	238	21.4	51	568	60
JUL							
02...	1115	47	235	17.0	41	711	90
07...	1245	46	235	21.0	27	642	80
09...	1215	37	255	20.4	28	448	45
12...	1600	56	222	20.7	19	400	60
15...	1030	62	202	18.2	37	637	107
20...	1300	47	195	20.5	119	128	16
23...	1345	40	165	22.0	101	763	82
27...	1330	37	270	20.7	108	682	68
AUG							
02...	1115	55	265	20.0	40	473	70
05...	1000	37	275	18.7	46	595	59
09...	1050	65	250	18.4	--	405	71
16...	1715	80	245	18.0	34	351	76
19...	1030	93	204	15.6	34	670	168
23...	1030	66	260	18.3	21	277	49
27...	1045	68	260	16.3	20	202	37
30...	1230	63	280	19.0	14	188	32
SEP							
02...	1115	52	280	18.0	17	200	28
07...	1215	70	210	15.9	16	161	30
09...	1100	65	293	14.7	17	252	44
15...	1500	84	280	17.8	12	128	29
17...	1600	70	240	17.0	11	119	22
21...	1200	50	285	16.0	11	131	18
24...	1000	43	325	15.6	11	135	16
28...	1430	44	315	18.3	12	111	13

12509820 SNIPES CREEK NEAR PROSSER, WA

LOCATION.--Lat 46°14'32", long 119°40'48", in NW¼NW¼ sec.27, T.9 N., R.25 E., Benton County, Hydrologic Unit 17030003, 4.5 mi (7.2 km) northeast of Prosser.

DRAINAGE AREA.--33.6 mi² (87.0 km²).

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
12...	1130	20	950	5.5	0	1	.05
18...	1130	25	9500	6.5	1	8	.54
24...	1310	100	172	8.0	30	1110	300
26...	1120	90	130	5.5	25	226	55
28...	1125	100	163	4.5	20	298	80
APR							
01...	1450	95	157	8.5	2	183	47
04...	1320	100	145	6.0	6	198	53
08...	1310	100	160	8.5	2	148	40
10...	1310	90	160	9.5	2	59	14
15...	1355	80	168	9.0	20	100	22
21...	1315	85	140	12.0	20	89	20
23...	1325	80	150	12.0	20	124	27
28...	1145	90	150	12.0	20	87	21
MAY							
01...	1105	90	150	13.0	10	106	26
05...	1140	85	165	12.0	20	76	17
08...	1905	75	175	16.0	20	109	22
14...	1750	70	180	16.0	40	261	49
18...	1305	70	170	15.0	40	197	37
23...	1200	65	230	17.0	50	647	114
29...	1645	55	240	19.0	50	460	68
JUN							
01...	1305	70	210	18.0	40	727	137
03...	1245	65	220	18.0	40	704	124
06...	1505	65	220	19.0	50	410	72
10...	1345	65	210	20.0	40	401	70
16...	1515	55	240	19.0	40	290	43
19...	1340	65	210	17.0	40	460	81
23...	1510	75	185	19.0	30	316	64
25...	1530	75	175	18.0	40	453	92
27...	1600	75	180	16.0	30	483	98
JUL							
02...	1615	70	220	18.0	40	339	64
04...	1600	65	270	20.0	40	718	126
09...	1615	35	450	21.0	30	244	23
12...	1200	55	245	21.0	40	1630	242
16...	1045	70	200	18.0	30	421	80
18...	1045	70	190	18.8	30	633	120
22...	1245	80	185	22.2	30	373	81
28...	1300	65	220	24.8	30	504	88
31...	1315	65	310	20.9	35	1280	225
AUG							
04...	1245	65	210	22.0	40	459	81
14...	1515	45	360	22.4	15	83	10
19...	1410	75	180	20.4	10	472	96
20...	1130	85	170	18.6	10	234	54
26...	1230	110	150	17.8	7	1570	466
SEP							
02...	1140	85	200	16.6	8	123	28
09...	1215	70	230	19.4	2	36	6.8
17...	1030	65	220	15.8	3	45	7.9
23...	1145	85	190	16.8	4	72	17
OCT							
21...	1250	105	185	8.8	3	107	30
MAR , 1976							
02...	1040	1.0	850	1.0	1	40	.11
09...	1010	1.0	760	6.0	1	20	.05
16...	1300	1.0	810	12.2	2	9	.02
22...	1045	110	149	7.9	29	282	84
25...	0935	105	150	6.7	44	238	67
30...	1200	100	139	10.6	23	87	23
APR							
01...	0900	150	120	6.4	18	265	107
05...	0945	140	105	9.6	9	228	86
08...	0950	110	102	9.6	9	112	33
12...	1210	110	138	11.8	19	92	27
15...	0945	80	146	8.8	14	97	21
20...	1015	80	145	12.4	11	63	14
23...	1415	80	127	12.7	8	63	14
26...	1120	95	131	10.2	6	63	16
29...	0950	90	134	11.1	7	56	14
MAY							
04...	1430	85	159	16.1	9	140	32
06...	0900	50	218	11.8	19	81	11
11...	1330	65	186	17.8	17	141	25
14...	1130	65	162	15.8	--	204	36
20...	0915	60	225	12.4	13	234	38
25...	1400	80	130	14.7	18	506	109
28...	1230	75	137	14.8	17	344	70

12509820 SNIPES CREEK NEAR PROSSER, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUN , 1976							
02...	1330	90	139	15.3	9	162	39
04...	1130	90	128	14.5	8	112	27
07...	0945	90	160	16.5	7	156	38
11...	1330	65	195	17.4	30	217	38
15...	1530	50	240	17.1	30	324	44
18...	1230	70	165	20.4	23	469	89
21...	0935	60	205	17.4	22	376	61
25...	1430	60	220	19.2	23	316	51
29...	1315	60	230	22.2	17	158	26
JUL							
02...	1130	65	325	18.4	37	702	123
07...	1300	70	185	21.5	22	279	53
09...	1230	75	200	21.3	18	231	47
12...	1610	75	165	21.2	13	227	46
15...	1015	80	168	18.9	17	190	41
20...	1300	55	175	21.0	20	150	22
23...	1400	65	170	22.7	32	176	31
27...	1330	60	250	21.8	23	183	30
30...	1345	50	305	22.2	20	61	8.2
AUG							
02...	1100	65	221	20.6	22	123	22
05...	0945	75	195	19.0	18	126	26
09...	1040	80	190	19.0	13	135	29
16...	1730	80	185	17.6	33	290	63
19...	1015	90	192	16.0	14	187	45
23...	1015	95	172	18.7	9	97	25
26...	1030	85	175	16.1	8	71	16
30...	1215	105	147	19.2	9	70	20
SEP							
03...	1230	85	150	19.5	6	52	12
08...	1230	80	150	16.4	8	38	8.2
10...	1115	80	200	15.2	10	54	12
15...	1515	85	205	17.2	6	41	9.4
17...	1600	90	180	--	7	56	14
21...	1215	90	175	--	5	39	9.5
24...	1015	80	195	16.6	4	32	6.9
28...	1445	80	187	18.6	4	24	5.2

12510200 CORRAL CANYON CREEK NEAR BENTON CITY, WA

LOCATION.--Lat 46°17'03", long 119°32'06", in NW¼NW¼ sec.11, T.9 N., R.26 E., Benton County, Hydrologic Unit 17030003, 3.0 mi (4.8 km) west of Benton City, at road crossing, 0.5 mi (0.8 km) above mouth.

DRAINAGE AREA.--25.1 mi² (65.0 km²).

PERIOD OF RECORD.--March 1975 to September 1976 (discontinued).

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
12...	1030	3.2	720	7.0	1	105	.91
18...	1300	3.4	700	10.5	2	139	1.3
24...	1340	34	220	9.0	20	340	31
26...	1310	3.1	685	11.0	35	124	1.0
26...	1350	29	225	5.0	35	302	24
28...	1155	32	222	5.0	20	159	14
APR							
01...	1515	22	238	10.5	5	169	10
04...	1340	29	215	6.0	3	104	8.1
08...	1340	60	200	9.5	7	527	85
10...	1310	26	220	10.0	4	139	9.8
15...	1425	12	300	10.5	3	93	3.0
21...	1340	9.0	290	14.0	--	50	1.2
23...	1355	20	225	15.0	10	77	4.2
28...	1120	12	280	13.0	10	44	1.4
MAY							
01...	1130	8.5	330	14.0	7	25	.57
05...	1110	13	295	12.0	10	60	2.1
08...	1810	12	310	15.0	10	54	1.7
14...	1720	9.0	420	17.0	10	112	2.7
18...	1220	23	210	16.0	20	142	8.8
23...	1220	17	300	17.0	20	107	4.9
29...	1610	32	245	18.0	30	172	15
JUN							
01...	1215	13	390	18.0	--	55	1.9
03...	1215	12	420	19.0	--	63	2.0
06...	1410	22	310	19.0	20	106	6.3
10...	1315	23	320	19.0	--	83	5.2
16...	1445	18	380	19.0	9	58	2.8
19...	1315	20	370	17.0	10	68	3.7
23...	1445	23	345	19.0	10	88	5.5
25...	1600	20	360	20.0	10	52	2.8
27...	1530	36	280	17.0	10	118	11
JUL							
02...	1545	22	330	20.0	9	67	4.0
04...	1530	26	360	19.0	20	112	7.9
09...	1545	22	440	21.0	9	57	3.4
12...	1230	18	490	20.0	10	48	2.3
16...	1115	23	380	17.0	9	64	4.0
18...	1110	23	370	17.8	5	45	2.8
22...	1315	22	400	21.0	9	45	2.7
28...	1400	19	340	23.9	8	51	2.6
31...	1415	25	290	20.4	15	116	7.8
AUG							
04...	1345	22	360	21.8	15	55	3.3
14...	1540	21	360	20.6	4	36	2.0
19...	1425	52	260	19.6	8	181	25
20...	1105	60	270	18.4	7	122	20
26...	1315	10	600	18.4	2	45	1.2
SEP							
02...	1200	22	370	16.5	2	38	2.3
09...	1245	16	400	18.8	1	29	1.3
17...	1100	22	370	15.5	1	33	2.0
23...	1205	22	420	16.7	1	31	1.8
OCT							
21...	0950	20	500	11.6	1	35	1.9
MAR , 1976							
02...	0950	3.0	640	5.2	2	28	.23
09...	0920	3.0	900	8.2	1	4	.03
16...	1200	2.5	650	12.0	2	8	.05
22...	1025	18	230	8.2	40	256	12
25...	0915	34	200	6.6	60	484	44
30...	1145	33	192	10.2	24	146	13
APR							
01...	0845	15	220	5.8	10	69	2.8
05...	0930	20	176	10.9	7	104	5.6
08...	0935	9.5	191	10.8	7	281	7.2
12...	1150	7.0	285	13.8	12	74	1.4
15...	0920	8.0	265	9.1	9	51	1.1
20...	0950	11	241	13.0	6	77	2.3
23...	1430	12	221	14.6	7	105	3.4
26...	1100	18	158	10.7	6	114	5.5
29...	0935	7.5	291	11.8	5	48	.97
MAY							
04...	1500	8.0	263	18.0	7	48	1.0
06...	0845	5.5	325	11.8	8	35	.52
11...	1400	6.5	335	18.6	5	31	.54
14...	1200	9.0	233	16.4	21	131	3.2
20...	0900	11	304	12.3	9	89	2.6
25...	1415	26	256	16.8	17	895	63

YAKIMA RIVER BASIN

12510200 CORRAL CANYON CREEK NEAR BENTON CITY, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAY , 1976							
28...	1240	15	252	15.5	13	81	3.3
JUN							
02...	1345	20	275	16.5	6	69	3.7
04...	1145	26	250	15.3	9	71	5.0
07...	0930	19	275	16.1	6	77	4.0
11...	1345	13	325	17.2	9	71	2.5
15...	1545	16	360	15.7	8	60	2.6
18...	1245	16	335	19.9	14	90	3.9
21...	0920	15	340	16.2	12	73	3.0
25...	1445	18	305	16.7	16	151	7.3
29...	1330	22	272	22.0	12	105	6.2
JUL							
02...	1145	22	315	18.1	8	65	3.9
07...	1315	13	375	20.5	7	74	2.6
09...	1245	23	267	20.4	9	79	4.9
12...	1625	29	250	21.4	6	75	5.9
15...	1000	20	265	17.5	6	57	3.1
20...	1315	13	297	18.6	4	162	5.7
23...	1415	13	360	21.4	10	44	1.5
27...	1345	9.0	445	19.7	8	29	.70
30...	1400	15	365	20.8	9	45	1.8
AUG							
02...	1050	19	325	18.7	6	47	2.4
05...	0930	22	275	17.8	7	63	3.7
09...	1025	32	285	17.8	10	88	7.6
16...	1745	22	360	17.7	9	88	5.2
19...	1000	22	238	15.7	6	59	3.5
23...	1000	19	400	17.6	4	44	2.3
26...	1015	34	295	16.0	7	115	11
30...	1015	34	315	17.5	4	78	7.2
SEP							
03...	1430	14	355	19.0	3	38	1.4
08...	1245	18	330	16.7	6	77	3.7
10...	1130	20	395	15.2	6	34	1.8
15...	1530	22	335	17.6	10	146	8.7
17...	1415	32	305	--	7	196	17
21...	1230	30	330	--	4	68	5.5
24...	1030	34	320	16.1	8	73	6.7
28...	1500	34	320	18.3	7	118	11

12510500 YAKIMA RIVER AT KIONA, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 46°15'13", long 119°28'37", in SE¼NE¼ sec.19, T.9 N., R.27 E., Benton County, Hydrologic Unit 17030003, on left bank just upstream from abandoned highway bridge pier at Kiona, 0.1 mi (0.2 km) upstream from highway bridge, 3.6 mi (5.8 km) downstream from Corral Canyon Creek, 5.0 mi (8.0 km) downstream from intake of Kiona Canal, and at mile 29.9 (48.1 km).

DRAINAGE AREA.--5,615 mi² (14,543 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August to December 1895 (gage heights only, fragmentary), August 1896 to March 1915, February 1933 to current year.

REVISED RECORDS.--WSP 214: 1905. WSP 1122: 1934(M). WSP 1216: 1949-50. WSP 1286: 1907(M), 1909, 1936. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 454.41 ft (138.504 m) above mean sea level. Prior to Mar. 31, 1915, nonrecording gages at approximately same site and datum. Feb. 6, 1933, to July 26, 1934, nonrecording gage at present site and datum.

REMARKS.--Water-discharge records good. Diversions above station for irrigation of about 424,000 acres (1,720 km²). Some regulation by diversions and by Keechelus, Kachess, Cle Elum, Bumping, and Rimrock Lakes. The Kiona Canal bypasses station with a mean flow of approximately 23 ft³/s (0.65 m³/s) for irrigation of about 1,100 acres (4.5 km²) below station. Diversion by the Kennewick Canal, which began in August 1956, was 94,610 acre-ft (117 hm³) during the current water year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 67,000 ft³/s (1,900 m³/s) Dec. 23, 1933, gage height, 21.57 ft (6.575 m), from high-water marks; minimum observed, 105 ft³/s (2.97 m³/s) Sept. 11, 1906, gage height, 2.35 ft (0.716 m), datum then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,410 ft³/s (96.6 m³/s) Oct. 19, gage height, 5.00 ft (1.524 m); minimum,168 ft³/s (4.76 m³/s) Mar. 25, gage height, 1.66 ft (0.506 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2090	2210	1730	1920	1480	977	384	378	926	609	886	1860
2	2130	2200	1710	1810	1470	902	300	1100	1020	646	926	1820
3	2170	2260	1700	1720	1460	854	250	1380	1560	602	894	1750
4	2250	2250	1700	1610	1430	726	225	1130	1580	862	782	1930
5	2330	2230	1750	1560	1370	670	225	1110	1590	1060	630	2020
6	2460	2210	1770	1600	1300	678	342	1080	1730	1090	630	1930
7	2580	2170	1750	1100	1220	702	646	870	1800	986	846	1810
8	2500	2210	1740	1100	1170	654	710	862	1580	942	1100	1610
9	2480	2130	1750	1100	1150	581	678	942	1300	910	1120	1460
10	2470	2090	1800	1100	1150	490	1230	942	1110	798	986	1440
11	2460	2050	1830	1150	1110	402	1340	926	959	806	790	1470
12	2450	2010	1810	1200	854	476	959	968	670	968	670	1490
13	2460	1970	1790	1300	1180	518	623	1030	630	950	694	1470
14	2460	1950	1770	1350	1300	539	414	894	854	878	774	1380
15	2260	1930	1750	1450	1480	511	360	654	814	838	854	1320
16	2760	1920	1740	1560	1380	462	441	646	814	870	878	1360
17	2830	1840	1730	1620	1290	420	402	774	710	854	870	1440
18	2660	1750	1740	1680	1150	384	342	798	574	878	774	1500
19	3070	1850	1750	1720	1080	366	312	742	525	1110	838	1560
20	3250	1930	1740	2700	1190	342	289	581	546	1160	1070	1540
21	3200	1970	1730	3110	1070	300	262	654	630	1010	934	1450
22	3100	1950	1690	2750	1040	318	245	862	638	862	862	1400
23	2790	1930	1710	2470	985	312	245	854	595	798	918	1420
24	2560	1910	1740	2210	958	284	245	1000	588	790	1130	1660
25	2440	1900	1690	1900	854	256	245	1130	588	790	1260	1880
26	2360	1870	1650	1810	750	289	434	1060	546	782	1460	2010
27	2390	1850	1630	1760	790	360	977	902	518	782	1480	2120
28	2340	1870	1690	1700	902	300	798	774	525	814	1490	2170
29	2300	1770	1900	1640	---	250	462	870	574	870	1490	2190
30	2360	1740	2020	1580	---	336	396	1020	567	886	1650	2210
31	2280	---	1970	1530	---	396	---	1020	---	878	1670	---
TOTAL	78240	59920	54470	52810	32571	15055	14781	27953	27061	26879	31356	50670
MEAN	2524	1997	1757	1704	1163	486	493	902	902	867	1011	1689
MAX	3250	2260	2020	3110	1480	977	1340	1380	1800	1160	1670	2210
MIN	2090	1740	1630	1100	758	250	225	378	518	602	630	1320
AC-FT	155200	118900	108000	104700	64600	29860	29320	55440	53680	53310	62190	100500

CAL YR 1976 TOTAL 1497480 MEAN 4091 MAX 12500 MIN 1480 AC-FT 2970000
WTR YR 1977 TOTAL 471766 MEAN 1293 MAX 3250 MIN 225 AC-FT 935700

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--Water quality data obtained at the highway bridge 0.1 mi (0.2 km) downstream from gage.

PERIOD OF RECORD.--Water years 1953 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1952 to September 1969 (composite samples), October 1969 to current year.
WATER TEMPERATURES: December 1952 to current year.

REMARKS.--Specific conductance samples and water temperatures collected once daily by observer.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance and coliform data for the diel study furnished by Washington State Department of Ecology.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum observed, 674 micromhos Dec. 3, 1970; minimum observed, 90 micromhos June 4, 1975.
WATER TEMPERATURES: Maximum, 29.0°C July 18, 1960, July 12, 1961; minimum, 0.0°C on several days during winter months most years.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed, 470 micromhos Mar. 13-15; minimum observed, 235 micromhos Jan. 24.
WATER TEMPERATURES: Maximum observed, 27.3°C Aug. 3; minimum observed, 0.0°C Dec. 4, 5, Jan. 7-15.

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
MAR , 1975							
12...	1045	5310	205	6.5	4	50	717
18...	1400	4340	215	7.0	6	33	387
20...	1340	4300	220	6.5	4	27	313
24...	1405	3780	170	8.0	5	27	276
26...	1410	3570	220	7.0	6	32	308
28...	1220	3110	230	6.0	4	17	143
APR							
01...	1535	3380	225	9.5	1	26	237
04...	1400	3280	220	8.0	3	23	204
08...	1405	2950	230	9.5	1	23	183
10...	1400	2810	230	10.0	2	16	121
15...	1450	4460	195	11.0	2	75	903
21...	1405	4670	150	12.0	--	50	630
23...	1415	4130	155	12.0	10	39	435
28...	1105	4180	195	12.0	4	39	440
MAY							
01...	1150	3170	210	13.0	9	33	282
05...	1040	4400	190	12.0	10	54	642
08...	1835	3340	220	16.0	10	32	289
14...	1650	9180	145	16.0	20	172	4260
18...	1230	12400	130	13.0	20	204	6830
23...	1140	11600	135	14.0	20	156	4890
29...	1545	8340	150	17.0	20	125	2820
JUN							
01...	1230	9270	140	18.0	20	121	3030
03...	1150	11700	120	17.0	30	208	6570
06...	1435	9180	130	13.0	20	124	3070
10...	1245	7030	150	18.0	20	135	2560
16...	1415	7500	145	17.0	20	104	2110
19...	1245	5670	160	15.0	10	73	1120
23...	1415	5620	165	17.0	10	77	1170
25...	1620	4830	175	18.0	20	56	730
27...	1500	4500	170	15.0	20	51	620
JUL							
02...	1515	2390	270	18.0	20	29	187
04...	1500	3420	310	18.0	10	54	499
09...	1515	4890	180	20.0	20	84	1110
12...	1300	4320	195	20.0	20	78	910
16...	1140	2940	230	17.0	10	39	310
18...	1145	2120	250	20.2	9	30	172

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA, MARCH 1975 TO SEPTEMBER 1976

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
JUL , 1975							
22...	1340	2070	280	23.4	9	31	173
28...	1330	1510	310	26.1	7	32	130
31...	1340	1500	325	21.8	10	31	126
AUG							
04...	1315	1730	310	24.0	6	30	140
14...	1610	1330	320	24.4	4	16	57
19...	1450	2850	300	21.4	4	50	385
20...	1020	3540	270	19.8	3	90	860
26...	1430	3240	250	19.6	3	77	674
SEP							
02...	1315	2580	250	18.8	2	28	195
09...	1330	3100	330	20.2	1	19	159
17...	1150	1650	330	17.8	1	17	76
23...	1310	1980	320	17.8	1	19	102
MAR , 1976							
02...	0915	3490	209	3.4	3	17	160
09...	0900	3140	228	5.8	2	10	85
16...	1115	3240	190	7.6	6	16	140
22...	0955	4400	181	6.7	7	34	404
25...	0950	3840	200	7.2	15	47	487
30...	1115	3870	189	9.9	13	36	376
APR							
01...	0830	5130	182	7.4	6	160	2220
05...	0900	5440	154	9.4	4	58	852
08...	0915	7170	138	9.3	8	128	2480
12...	1125	10200	140	11.0	12	211	5810
15...	0855	9720	130	7.8	7	119	3120
20...	0930	6350	120	10.3	4	64	1100
23...	1445	5820	167	11.8	4	54	849
26...	1040	5460	161	10.4	4	44	649
29...	0905	3910	169	11.3	3	30	317
MAY							
04...	1515	8640	139	14.8	12	147	3430
06...	0820	7120	137	11.5	7	80	1540
11...	1415	10400	112	13.7	18	184	5170
14...	1230	8080	130	14.4	12	104	2270
20...	0845	6310	155	12.1	7	61	1040
25...	1430	7050	113	14.0	4	70	1330
28...	1300	6360	155	14.2	6	51	876
JUN							
02...	1400	5310	140	14.2	5	52	746
04...	1200	3430	195	15.1	4	33	306
07...	0915	2460	230	17.4	3	28	186
11...	1400	2890	245	18.9	6	38	297
15...	1600	2220	245	17.8	5	26	156
18...	1300	2630	213	19.5	4	32	227
21...	0900	4380	190	18.1	4	93	1100
JUL							
02...	1200	3870	165	17.6	5	50	522
13...	1615	4530	158	20.6	4	58	709
15...	0930	3270	170	18.3	3	43	380
20...	1330	2070	220	21.7	9	34	190
23...	1430	1650	220	24.2	10	28	125
27...	1400	1820	253	22.3	9	34	167
30...	1430	1480	285	24.2	8	25	100
AUG							
02...	1030	1850	280	21.4	7	34	170
05...	0915	2170	255	21.1	6	43	252
09...	1010	3270	250	19.9	6	69	609
16...	1800	2500	280	19.0	7	37	250
19...	0930	2790	370	17.4	5	44	331
23...	0930	2190	365	19.3	2	26	154
26...	1000	1990	305	18.3	4	24	129
30...	0945	2510	310	19.4	4	33	224
SEP							
03...	1445	1900	290	22.1	4	20	103
08...	1300	2180	240	18.1	5	25	147
10...	1145	2120	235	17.0	6	20	114
15...	1545	2150	280	18.2	4	27	157
21...	1245	2270	280	--	4	14	86
24...	1045	2060	298	18.1	3	17	95
28...	1515	2180	297	19.1	3	13	77

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM ,TUN-MF (COL./ 100 ML)	STREP-TOCOCCI (COL-ONIES PER 100 ML)
OCT										
27...	1130	2360	305	8.3	10.1	3	2800	47	--	520
NOV										
22...	1200	1940	330	8.0	6.0	3	--	--	--	--
DEC										
16...	1055	1740	325	8.1	3.5	3	143	--	13	--
JAN										
10...	1100	1550	334	7.6	3.4	2	3500	--	B220	--
FEB										
24...	1250	950	--	8.4	6.9	4	B760	--	<1	--
MAR										
15...	1225	525	--	8.2	7.5	5	B110	--	<1	--
APR										
13...	1200	609	295	9.1	15.5	9	10000	--	B24	--
MAY										
02...	1115	1000	--	8.7	16.0	10	1400	--	B81	--
JUN										
08...	1145	1970	257	8.4	22.5	10	5200	--	B20	--
JUL										
05...	1240	990	365	9.2	20.6	20	49000	--	B65	--
AUG										
03...	1440	870	415	8.6	27.3	15	B310	--	B32	--
SEP										
07...	1415	1780	336	7.8	20.5	10	2100	--	B32	--
27...	0900	2120	273	7.6	14.5	6	--	--	--	--

DATE	FECAL STREP-TOCOCCI KF AGAR (COL. PER 100 ML)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)
OCT									
27...	--	120	0	31	11	20	3.6	164	135
NOV									
22...	1260	130	0	31	12	20	3.4	170	139
DEC									
16...	440	120	0	30	12	20	3.6	150	130
JAN									
10...	4600	120	0	30	11	19	3.1	152	125
FEB									
24...	1000	140	0	33	13	23	4.1	181	140
MAR									
15...	B340	170	0	41	16	28	4.4	210	170
APR									
13...	3200	110	0	27	9.0	19	3.3	150	130
MAY									
02...	14000	130	0	33	12	22	4.0	180	150
JUN									
08...	49000	100	0	26	9.1	16	2.9	130	110
JUL									
05...	10000	150	0	38	13	23	4.4	180	150
AUG									
03...	B3100	140	0	35	12	22	3.7	190	160
SEP									
07...	2100	120	0	30	11	20	3.6	150	120
27...	--	130	21	33	12	20	3.9	135	110

B Results based upon colony counts outside the ideal range.

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)
OCT									
27...	1.3	19	6.9	.3	26	188	199	17	1.2
NOV									
22...	2.7	20	7.8	.2	24	195	202	1	1.2
DEC									
16...	2.0	21	7.7	.2	25	198	197	19	1.2
JAN									
18...	6.1	19	8.8	.2	27	202	193	8	1.6
FEB									
24...	1.2	26	9.7	.2	26	226	224	2	1.7
MAR									
15...	2.2	35	15	.3	28	277	275	4	1.6
APR									
13...	.2	21	7.2	.3	18	171	182	31	.41
MAY									
02...	.6	24	8.5	.2	15	202	207	63	.09
JUN									
08...	.8	17	6.0	.2	19	164	160	30	.72
JUL									
05...	.2	29	9.2	.3	19	222	226	60	.41
AUG									
03...	.8	23	8.2	.2	19	214	217	22	.76
SEP									
07...	3.8	32	7.1	.2	26	197	204	30	1.2
27...	5.4	21	7.3	.2	29	--	193	--	--

DATE	TOTAL NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT									
27...	.02	1.2	.08	.38	.12	.08	15	96	--
NOV									
22...	.02	1.2	.06	.32	.13	.11	--	--	--
DEC									
16...	.02	1.2	.04	.40	.14	.10	7	33	--
JAN									
18...	.02	1.6	.13	.40	.17	.12	4	17	--
FEB									
24...	.02	1.7	.11	.51	.16	.08	6	15	--
MAR									
15...	.03	1.6	.26	.88	.17	.07	5	7.1	53
APR									
13...	.02	.43	.38	1.2	.22	.04	26	63	95
MAY									
02...	.03	.12	.29	2.3	.37	.03	60	175	96
JUN									
08...	.03	.75	.13	.59	.18	.09	35	148	93
JUL									
05...	.04	.45	.28	2.9	.27	.05	68	124	92
AUG									
03...	.02	.79	.17	.75	.15	.08	36	85	96
SEP									
07...	.02	1.2	.07	.55	.13	.08	35	168	89
27...	--	1.2	.07	.41	.14	.07	--	--	--

12510500 YAKIMA RIVER AT KIONA, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT												
27...	1130	10	10	<10	2	0	0	<50	0	<10	1	330
JAN												
10...	1100	3	3	<10	2	0	0	<50	0	10	2	280
APR												
13...	1200	4	2	<10	2	0	0	<50	0	<10	1	750
JUL												
05...	1240	5	3	<10	0	0	0	<50	0	10	4	1600

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT												
27...	90	<100	17	40	20	.0	.0	0	0	10	0	1.9
JAN												
10...	50	<100	11	60	50	.1	.0	1	0	20	0	2.0
APR												
13...	80	<100	16	180	30	.0	.0	0	0	10	0	4.1
JUL												
05...	30	<100	4	190	4	.0	.1	0	0	20	0	9.9

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM .7UM-MF (COL./ 100 ML)	HARD-NESS (CA,MG) (MG/L)
SEP											
27...	0900	2120	273	7.6	14.5	6	8.9	87	B6000	B56	130
27...	1115	2120	333	7.6	14.2	--	8.4	82	--	--	--
27...	1440	2070	325	7.7	14.8	9	9.9	98	--	--	--
27...	1700	2090	336	7.7	14.8	--	9.6	95	B5000	B44	--
27...	2020	2150	331	7.4	14.7	7	9.0	89	--	--	--
27...	2345	2100	324	7.5	14.5	--	8.9	88	--	--	--

DATE	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
SEP										
27...	21	33	12	20	3.9	135	0	110	5.0	21
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	134	0	110	4.3	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	SUS-PENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO, PHOS-PHORUS (P) (MG/L)
SEP										
27...	7.3	.2	29	193	22	1.2	.07	.41	.14	.07
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	30	1.3	.20	.65	.14	.06
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--

B Results based upon colony counts outside the ideal range.

12510500 YAKIMA RIVER AT KIONA, WA--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	TOTAL ALDRIN (UG/L)	TOTAL ATRAZINE (UG/L)	TOTAL CHLORDANE (UG/L)	TOTAL DDD (UG/L)	TOTAL DDE (UG/L)	TOTAL DDT (UG/L)	TOTAL DIAZINON (UG/L)
NOV 22...	1200	ND	ND	ND	ND	ND	ND	ND
MAY 02...	1115	ND	ND	ND	ND	ND	ND	ND
AUG 03...	1440	ND	ND	ND	ND	ND	ND	ND

DATE	TOTAL DIELDRIN (UG/L)	TOTAL ENDRIN (UG/L)	TOTAL ETHION (UG/L)	TOTAL HEPTACHLOR (UG/L)	TOTAL HEPTACHLOR EPOXIDE (UG/L)	TOTAL LINDANE (UG/L)	TOTAL MALATHION (UG/L)	TOTAL METHOXYCHLOR (UG/L)	TOTAL METHYL PARATHION (UG/L)
NOV 22...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAY 02...	ND	ND	ND	ND	ND	ND	ND	ND	ND
AUG 03...	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	TOTAL METHYL TRITHION (UG/L)	TOTAL PARATHION (UG/L)	SIMAZINE TOTAL (UG/L)	TOTAL TOXAPHENE (UG/L)	TOTAL TRITHION (UG/L)	TOTAL 2,4-D (UG/L)	TOTAL 2,4,5-T (UG/L)	TOTAL SILVEX (UG/L)
NOV 22...	ND	ND	ND	ND	ND	ND	ND	ND
MAY 02...	ND	ND	ND	ND	ND	ND	ND	ND
AUG 03...	ND	ND	ND	ND	ND	ND	ND	ND

ND None detected.

12510500 YAKIMA RIVER AT KIONA, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE	OCT 27,76	NOV 22,76	DEC 16,76	JAN 18,77	FEB 24,77
TIME	1130	1200	1055	1100	1250
TOTAL CELLS/ML	4500	3900	2300	6500	6500
DIVERSITY: DIVISION	1.2	0.9	1.0	0.9	0.3
.CLASS	1.2	0.9	1.0	0.9	0.3
..ORDER	1.6	1.0	1.6	1.1	1.2
...FAMILY	2.5	1.5	2.2	1.5	1.9
....GENUS	2.9	1.7	2.6	1.5	1.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	--	-	--	-	84	1
....CHODATELLA	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-
....QUADRIGULA	--	-	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	160	4	--	-	--	-	--	-	84	1
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CARTERIA	--	-	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-	--	-
....CHLOROGONIUM	--	-	--	-	--	-	--	-	62	1
...PHACOTACEAE										
....PTEROMONAS	--	-	--	-	--	-	--	-	--	-
...VOLVOCACEAE										
....PANDORINA	--	-	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	300	7	110	3	610#	27	260	4	4100#	63
....MELOSIRA	70	2	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	200	4	--	-	--	-	--	-	--	-
....COCCONEIS	*	0	--	-	*	0	--	-	62	1
....RHOICOSPHENIA	60	1	25	1	--	-	--	-	84	1
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	13	1	*	0	--	-
....CYMBELLA	*	0	37	1	25	1	*	0	170	3
...DIATOMACEAE										
....DIATOMA	60	1	75	2	76	3	330	5	210	3
...FRAGILARIACEAE										
....FRAGILARIA	70	2	--	-	--	-	--	-	--	-
....SYNEDRA	180	4	170	4	51	2	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	*	0	86	3	13	1	*	0	42	1
...MERIDIONACEAE										
....MERIDION	--	-	--	-	--	-	66	1	--	-
...NAVICULACEAE										
....GYROSIGMA	--	-	--	-	--	-	--	-	--	-
....NAVICULA	400	9	530	14	310	13	1300#	20	1000#	16
...NITZSCHIACEAE										
....NITZSCHIA	990#	22	62	2	250	11	150	2	550	8
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....DINOBRYON	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: EDI

12510500 YAKIMA RIVER AT KIONA, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	OCT 27,76 1130		NOV 22,76 1200		DEC 16,76 1055		JAN 19,77 1100		FEB 24,77 1250	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	--	-	--	-
....ANACYSTIS	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENOPSIS	--	-	--	-	--	-	--	-	--	-
....APHANIZOMENON	--	-	*	0	--	-	--	-	--	-
...OSCILLATORIACEAE										
....LYNGBYA	305	7	--	-	9700#	29	--	-	--	-
....OSCILLATORIA	1600#	36	27000#	70	3400#	15	44000#	60	--	-
....SPIRULINA	--	-	62	2	--	-	--	-	--	-
...RIVULARIACEAE										
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE										
....CRYPTOMONAS	62	1	--	-	*	0	--	-	--	-
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	13	1	--	-	84	1

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: EDI

DATE TIME	MAY 2,77 1115	JUN 8,77 1145	JUL 5,77 1240	AUG 3,77 1440	SEP 7,77 1415
TOTAL CELLS/ML	95000	17000	100000	25000	17000
DIVERSITY: DIVISION	0.2	1.4	1.4	1.5	0.9
.CLASS	0.3	1.4	1.4	1.5	0.9
..ORDER	0.4	2.1	1.7	2.0	1.1
...FAMILY	0.7	2.6	2.1	2.3	1.6
....GENUS	1.0	2.6	2.3	3.1	1.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	*	0	--	-
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	5600	5	*	0	--	-
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	--	-	*	0	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	9900	9	150	1	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	705	5	--	-	*	0	460	2	*	0
....CHODATELLA	--	-	670	3	*	0	*	0	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	*	0	--	-
....OOCYSTIS	--	-	--	-	--	-	150	1	*	0
....QUADRIGULA	--	-	--	-	--	-	310	1	--	-
....TETRAEDRON	--	-	--	-	*	0	*	0	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	1400	1	--	-	1800	2	1500	6	--	-
....SCENEDESMUS	1400	1	5300#	32	1800	2	4800#	19	881	5
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CARTERIA	--	-	--	-	--	-	*	0	--	-
....CHLAMYDOMONAS	--	-	--	-	*	0	150	1	*	0
....CHLOROGONIUM	--	-	--	-	--	-	*	0	--	-
...PHACOTACEAE										
....PTEROMONAS	--	-	--	-	--	-	*	0	--	-
...VOLVOCACEAE										
....PANDORINA	--	-	1100	7	--	-	930	6	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	83000#	87	5000#	30	55000#	53	7500#	30	290	2
....MELOSIRA	2800	3	--	-	2300	2	4200#	17	1000	6
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	--	-	--	-	--	-
....COCCONEIS	*	0	96	1	--	-	*	0	*	0
....RHOICOSPHENIA	*	0	--	-	*	0	150	1	*	0

12510500 YAKIMA RIVER AT KIONA, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	MAY 2,77 1115		JUN 8,77 1145		JUL 5,77 1240		AUG 3,77 1440		SEP 7,77 1415	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	--	-	*	0
....CYMBELLA	--	-	94	1	*	0	--	-	*	0
...DIATOMACEAE										
....DIATOMA	520	1	280	2	--	-	*	0	*	0
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	--	-	--	-	*	0
....SYNEDRA	*	0	760	5	*	0	310	1	730	4
...GOMPHONEMATACEAE										
....GOMPHONEMA	*	0	190	1	670	1	--	-	100	1
...MERIDIONACEAE										
....MERIDION	--	-	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....GYROSIGMA	*	0	--	-	--	-	--	-	--	-
....NAVICULA	2300	2	1000	6	*	0	*	0	210	1
...NITZSCHIACEAE										
....NITZSCHIA	1000	1	94	1	*	0	230	1	*	0
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....DINOBRYON	520	1	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....AGMENELLUM	--	-	--	-	--	-	2200	9	--	-
....ANACYSTIS	--	-	--	-	4000	4	--	-	*	0
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENOPSIS	--	-	--	-	--	-	850	3	--	-
....APHANIZOMENON	--	-	--	-	--	-	--	-	1100	6
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	2000	12	20000#	19	*	0	13000#	72
....SPIRULINA	--	-	--	-	--	-	--	-	--	-
...RIVULARIACEAE										
....RAPHIDIOPSIS	--	-	190	1	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	*	0	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE										
....CRYPTOMONAS	--	-	--	-	*	0	230	1	--	-
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: EDI

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	CHLOR-A PERI-PHYTON CHROMO-SPECT-METRIC (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-SPECT-METRIC (MG/M2)	LENGTH OF EXPO-SURE (DAYS)
OCT				
27...	1130	.121	.045	36

SAMPLING METHOD: Polyethelene Strip.

12510500 YAKIMA RIVER AT KIONA, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	318	325	325	310	290	420		425	380	358	352	338
2	317	325	350	330	290	410		425	368	354	345	340
3	318	337	390	330	290	420		430	345	340	368	300
4	310	335	400	330	290	415		420	360	375	390	320
5	311	330	375	330	320	415		425	366	338	422	320
6	310	330	360	330	320	415		272	349	330	372	310
7	288	335	360	330	320	440		285	282	318	384	355
8	288	338	360	350	320	430		265	282	280	388	304
9	288	330	350	350	320	430		275	282	300	364	310
10	300	330	360	350	320	440		265	297	335	355	320
11	300	332	360	350	360	440		280	300	350	358	330
12	300	340	350	390	360	440		350	317	360	385	325
13	295	345	350	390	360	470		368	340	326	366	325
14	295	345	340	390	365	470		370	354	300	364	325
15	295	340	355	340	369	470		350	367	360	390	330
16	300	360	320	340	367	---		360	384	320	390	340
17	305	360	320	340	367	---		410	384	340	385	340
18	305	370	320	340	369	---		430	384	350	370	335
19	305	370	320	320	369	---		415	384	342	380	335
20	301	370	315	320	360	---		425	384	335	390	310
21	301	360	305	320	360	---		420	359	315	370	330
22	295	360	300	320	362	---		400	384	310	369	340
23	290	365	300	310	362	---		420	382	335	371	340
24	290	355	300	235	364	---		415	381	335	362	355
25	322	355	300	240	361	---		380	384	370	360	340
26	320	350	310	240	398	---		390	384	370	365	330
27	320	350	310	240	398	---		385	394	340	320	318
28	332	---	310	240	398	---		370	359	367	300	310
29	332	380	310	240	---	---		360	380	369	310	290
30	320	360	290	290	---	---		382	384	369	300	310
31	330	---	310	290	---	---		374	---	360	312	---
MEAN	306	348	333	317	347	435		372	355	340	362	326

WTR YR 1977 MEAN 345 MAX 470 MIN 235

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.0	9.0	1.0	2.5	1.0	7.0	8.0	15.0	16.5	26.0	24.0	18.0
2	16.5	10.0	1.0	2.0	2.0	6.5	8.5	14.0	16.5	21.0	24.5	18.0
3	15.0	10.0	0.5	2.0	2.0	6.0	9.0	14.0	17.0	22.0	25.0	18.0
4	12.5	7.5	0.0	1.5	2.5	6.5	9.0	12.5	17.0	19.5	24.5	18.5
5	13.5	10.0	0.0	1.0	2.5	7.5	9.5	12.5	17.5	19.0	23.0	18.0
6	13.0	10.5	2.5	0.5	3.0	8.5	10.0	13.0	18.0	18.5	23.5	18.5
7	13.0	10.5	1.0	0.0	3.0	8.0	13.5	14.0	18.0	19.0	23.5	18.0
8	13.0	11.0	4.5	0.0	3.5	7.5	14.0	14.0	18.5	20.5	24.5	20.5
9	13.5	9.0	4.0	0.0	3.5	5.5	14.0	14.5	19.0	21.0	22.5	17.5
10	14.0	9.5	4.0	0.0	4.0	4.0	13.5	15.0	20.0	22.0	22.0	17.0
11	14.0	9.0	4.0	0.0	5.0	4.0	13.0	14.0	21.0	22.5	21.5	18.0
12	13.5	8.0	4.0	0.0	6.5	6.0	12.5	14.5	21.5	20.0	25.0	18.0
13	13.0	7.5	3.5	0.0	7.5	4.0	12.0	14.5	21.5	19.0	25.0	17.5
14	13.0	7.0	3.0	0.0	6.5	5.0	10.0	14.0	21.5	23.5	25.5	17.0
15	12.0	6.5	3.0	0.0	6.5	5.0	10.0	12.5	21.5	22.0	25.0	17.0
16	10.5	7.0	3.0	1.0	6.5	5.5	10.0	11.5	21.0	23.5	25.0	17.0
17	11.0	8.5	3.0	1.5	7.0	5.5	9.0	12.5	22.0	22.0	24.0	17.5
18	10.0	7.5	2.5	3.0	7.5	6.0	9.0	13.0	24.0	20.5	23.5	16.5
19	9.0	7.0	2.5	3.0	8.0	5.5	9.0	13.0	24.5	21.0	24.0	16.0
20	8.5	6.5	2.0	3.0	7.0	5.5	9.0	13.5	22.0	21.5	23.5	15.5
21	8.5	6.0	2.0	2.5	6.5	7.0	11.0	14.5	20.5	22.5	23.5	15.0
22	8.5	5.5	2.0	3.0	6.0	8.0	11.0	15.5	23.0	23.0	24.0	15.0
23	8.5	5.0	2.5	3.0	5.5	8.5	12.5	15.0	22.5	22.5	22.5	15.0
24	9.0	5.0	2.0	2.5	5.0	7.5	13.5	15.0	24.5	23.0	21.5	14.0
25	9.0	5.0	2.5	2.0	5.0	7.0	15.0	15.5	24.0	22.0	20.0	15.0
26	8.5	4.0	3.0	1.5	6.0	7.0	11.0	16.0	23.0	22.5	18.5	14.0
27	8.5	3.5	3.5	1.5	6.0	6.5	13.0	14.0	23.0	24.0	18.5	14.0
28	8.0	3.0	3.0	2.0	8.0	7.0	15.0	14.5	23.0	24.5	18.0	14.5
29	8.0	2.0	3.0	1.5	---	6.5	14.5	15.5	22.0	21.5	18.0	14.5
30	8.5	1.5	3.0	1.5	---	6.5	14.0	16.5	22.0	21.5	17.0	14.0
31	8.5	---	2.5	1.0	---	8.0	---	16.5	---	23.5	18.0	---
MEAN	11.5	7.0	2.5	1.5	5.0	6.5	11.5	14.0	21.0	22.0	22.5	16.5

WTR YR 1977 MEAN 12.0 MAX 26.0 MIN 0.0

12511800 YAKIMA RIVER AT VAN GEISAN BRIDGE NEAR RICHLAND, WA

LOCATION.--Lat 46°17'50", long 119°19'56", in NW¼NE¼ sec.5, T.9 N., R.28 E., Benton County, Hydrologic Unit 17030003, at Van Geisan bridge on State Highway 224, 1.5 mi (2.4 km) northwest of Richland, and at mile 8.4 (13.5 km).

DRAINAGE AREA.--6,150 mi² (15,930 km²).

PERIOD OF RECORD.--Water years 1974-75, September 27, 1977 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./ 100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
27...	0800	E2300	350	7.6	14.1	5	8.9	86	B8000	B36	130
27...	1100	E2300	348	7.6	14.8	--	9.5	94	--	--	--
27...	1400	E2300	350	7.7	15.0	5	10.0	99	B2000	B36	--
27...	1640	E2300	342	7.7	14.9	--	10.4	103	--	--	--
27...	1945	E2300	338	7.7	14.7	6	9.5	94	--	--	--
27...	2310	E2300	336	7.5	14.5	--	9.1	89	--	--	--

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
27...	17	33	12	20	4.0	140	0	115	5.6	34
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	140	0	115	4.5	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
SEP										
27...	7.5	.2	30	210	14	1.2	.10	.44	.12	.07
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	15	1.2	.12	.72	.11	.02
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--

B Results based upon colony counts outside the ideal range.
E Estimated.

12512500 PROVIDENCE COULEE AT CUNNINGHAM, WA

LOCATION.--Lat 46°49'18", long 118°48'27", in NE¼NW¼ sec.4, T.15 N., R.32 E., Adams County, Hydrologic Unit 17020016, on right bank 10 ft (3.0 m) upstream from Burlington Northern bridge at Cunningham and 5 mi (8.0 km) upstream from Hatton Coulee.

DRAINAGE AREA.--27.8 mi² (72.0 km²).

PERIOD OF RECORD.--October 1952 to September 1977 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 1,158.90 ft (353.233 m) above mean sea level.

REMARKS.--Records poor. No known regulation or diversion.

AVERAGE DISCHARGE.--25 years, 0.26 ft³/s (0.0074 m³/s), 188 acre-ft/yr (0.232 hm³/yr); median of yearly mean discharges, 0.061 ft³/s (0.0017 m³/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,160 ft³/s (61.2 m³/s) Feb. 21, 1956, gage height, 10.04 ft (3.060 m); no flow most of each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 0.38 ft³/s (0.011 m³/s) Mar. 3, gage height, 3.19 ft (0.972 m); no flow most of time.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.10	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00
4	.08	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.08	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.06	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.75	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00
MEAN	.024	.000	.000	.000	.000	.001	.000	.000	.000	.000	.000	.000
MAX	.12	.00	.00	.00	.00	.02	.00	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	1.5	.00	.00	.00	.00	.04	.00	.00	.00	.00	.00	.00

CAL YR 1976 TOTAL 23.39 MEAN .064 MAX 2.0 MIN .00 AC-FT 46
WTR YR 1977 TOTAL 0.77 MEAN .002 MAX .12 MIN .00 AC-FT 1.5

12513000 ESQUATZEL COULEE AT CONNELL, WA

LOCATION.--Lat 46°39'31", long 118°52'03", in SE¼NW¼ sec.36, T.14 N., R.31 E., Franklin County, Hydrologic Unit 17020016, on right bank 500 ft (152 m) upstream from outlet of local sewage treatment plant, at Connell, 3.0 mi (4.8 km) downstream from left bank tributary, and 8.4 mi (13.5 km) downstream from Hatton Coulee.

DRAINAGE AREA.--234 mi² (606 km²).

PERIOD OF RECORD.--January 1953 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 820.68 ft (250.143 m) above mean sea level, unadjusted. Prior to Aug. 7, 1959, at site 0.3 mi (0.5 km) upstream at different datum, and Aug. 7, 1959, to July 6, 1967, at site 900 ft (274 m) downstream at present datum.

REMARKS.--Records good. No diversion. Published flows August 1959 to September 1964 include effluent from sewage treatment plant 500 ft (152 m) downstream; records adjusted to exclude effluent October 1964 to June 1967.

AVERAGE DISCHARGE.--25 years, 1.15 ft³/s (0.0326 m³/s), 833 acre-ft/yr (1.03 hm³/yr), adjusted for effluent from sewage treatment plant 1959-64.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,560 ft³/s (157 m³/s) Feb. 21, 1956, gage height, 12.68 ft (3.865 m); no flow most of time.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1.2 ft³/s (0.034 m³/s) Aug. 30, gage height, 5.06 ft (1.542 m); no flow during most of year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	---	.00	.00	.00	.00	.00	.06	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00
MEAN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.002	.000
MAX	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.06	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.1	.00

CAL YR 1976 TOTAL 18.34 MEAN .050 MAX 10 MIN .00 AC-FT 36
WTR YR 1977 TOTAL 0.06 MEAN .000 MAX .06 MIN .00 AC-FT .1

12513500 ESQUATZEL COULEE AT ELTOPIA, WA

LOCATION.--Lat 46°27'45", long 119°00'40", in SW¼SE¼ sec.2, T.11 N., R.30 E., Franklin County, Hydrologic Unit 17020016, on left bank 50 ft (15 m) upstream from Burlington Northern bridge at Eltopia, and 8.2 mi (13.2 km) upstream from Esquatzel Diversion.

DRAINAGE AREA.--551 mi² (1,427 km²), of which 168 mi² (435 km²) in the vicinity of Sulphur Lake is noncontributing.

PERIOD OF RECORD.--January 1953 to current year.

REVISED RECORDS.--WSP 1933: Drainage area. WDR WA-75-1: 1974.

GAGE.--Water-stage recorder. Altitude of gage is 580 ft (177 m), from topographic map.

REMARKS.--Records fair. Considerable regulation by natural pondage in Esquatzel Coulee near Mesa 9 mi (14.5 km) upstream. No known diversions. Summer flow started in August 1971. Prior to August 1971 most of the runoff above station entered a sump maintained by the Bureau of Reclamation near Mesa. Since removal of the sump, there has been continuous flow at the station except for intermittent periods.

AVERAGE DISCHARGE.--18 years prior to removal of U.S. Bureau of Reclamation sump (water years 1953-70) 0.88 ft³/s (0.0249 m³/s), 638 acre-ft/yr (0.789 hm³/yr).
7 years (water years 1971-77), 17.9 ft³/s (0.507 m³/s), 12,970 acre-ft/yr (16.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,740 ft³/s (106 m³/s) Feb. 22, 1956, gage height, 18.23 ft (5.557 m); no flow most of time Jan. 1953 to September 1971; no flow at times in 1972, 1976 and 1977 water years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 48 ft³/s (1.36 m³/s) Oct. 25; maximum gage height, 6.86 ft (2.091 m) Sept. 30, backwater from aquatic growth; no flow Mar. 18, 19, 21, 25, Apr. 3.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	31	20	17	12	7.9	1.3	2.1	17	.08	18	32
2	38	28	20	16	11	7.6	.16	2.1	17	3.6	19	26
3	37	24	20	15	11	7.7	.00	3.1	17	4.6	20	23
4	35	23	20	14	11	7.0	.16	3.1	17	6.5	18	24
5	34	22	20	13	11	6.4	.55	3.0	18	8.2	17	22
6	36	22	20	12	10	6.2	.53	2.6	17	9.9	21	21
7	42	21	21	12	10	6.3	1.0	3.5	14	12	20	20
8	41	20	21	13	11	6.5	.69	12	9.0	12	21	11
9	39	20	20	13	9.9	5.2	.01	12	7.6	18	19	18
10	37	20	20	13	9.6	5.4	.09	11	6.8	17	13	19
11	38	20	21	14	11	5.8	1.2	6.0	7.0	17	15	20
12	38	20	20	14	9.7	5.1	.70	7.9	6.5	16	17	20
13	38	20	20	14	9.6	6.8	.88	9.9	4.8	17	18	22
14	40	20	18	15	9.2	4.5	.88	10	3.3	18	19	24
15	39	20	18	16	9.1	4.3	.95	11	2.5	18	24	26
16	38	19	20	15	8.8	1.6	1.6	12	3.6	17	20	23
17	38	15	20	15	8.8	3.6	3.5	13	4.0	17	18	24
18	39	15	18	15	8.4	.00	4.6	15	3.5	20	17	26
19	38	20	17	15	8.3	.00	4.3	16	3.6	21	16	23
20	42	19	18	15	8.3	.22	3.6	16	5.3	22	18	25
21	42	19	17	15	8.5	.00	3.3	17	4.4	23	17	26
22	42	19	17	15	8.4	.70	3.0	18	3.0	23	18	26
23	42	19	17	14	8.4	.34	2.1	20	3.6	22	18	27
24	39	18	17	14	8.1	.05	1.3	22	3.5	22	20	29
25	39	19	19	14	8.0	.00	1.2	22	3.3	21	21	29
26	42	19	19	14	8.0	.56	1.4	21	2.8	19	26	29
27	42	18	18	13	7.6	.94	1.0	12	2.1	18	24	29
28	40	19	18	13	8.0	1.2	1.2	16	1.5	17	26	30
29	39	19	18	12	---	.66	1.2	16	1.0	17	27	32
30	37	19	18	12	---	.26	1.4	18	.05	17	29	32
31	34	---	17	12	---	.26	---	19	---	18	31	---
TOTAL	1204	607	587	434	262.7	103.09	43.80	372.3	211.65	492.68	625	736
MEAN	38.8	20.2	18.9	14.0	9.38	3.33	1.46	12.0	7.05	15.9	20.2	24.5
MAX	42	31	21	17	12	7.9	4.6	22	18	23	31	32
MIN	34	15	17	12	7.6	.00	.00	2.1	.05	.08	13	11
AC-FT	2390	1200	1160	861	521	204	87	738	419	977	1240	1460

CAL YR 1976 TOTAL 5875.96 MEAN 16.1 MAX 42 MIN .00 AC-FT 11650
WTR YR 1977 TOTAL 5679.22 MEAN 15.6 MAX 42 MIN .00 AC-FT 11260

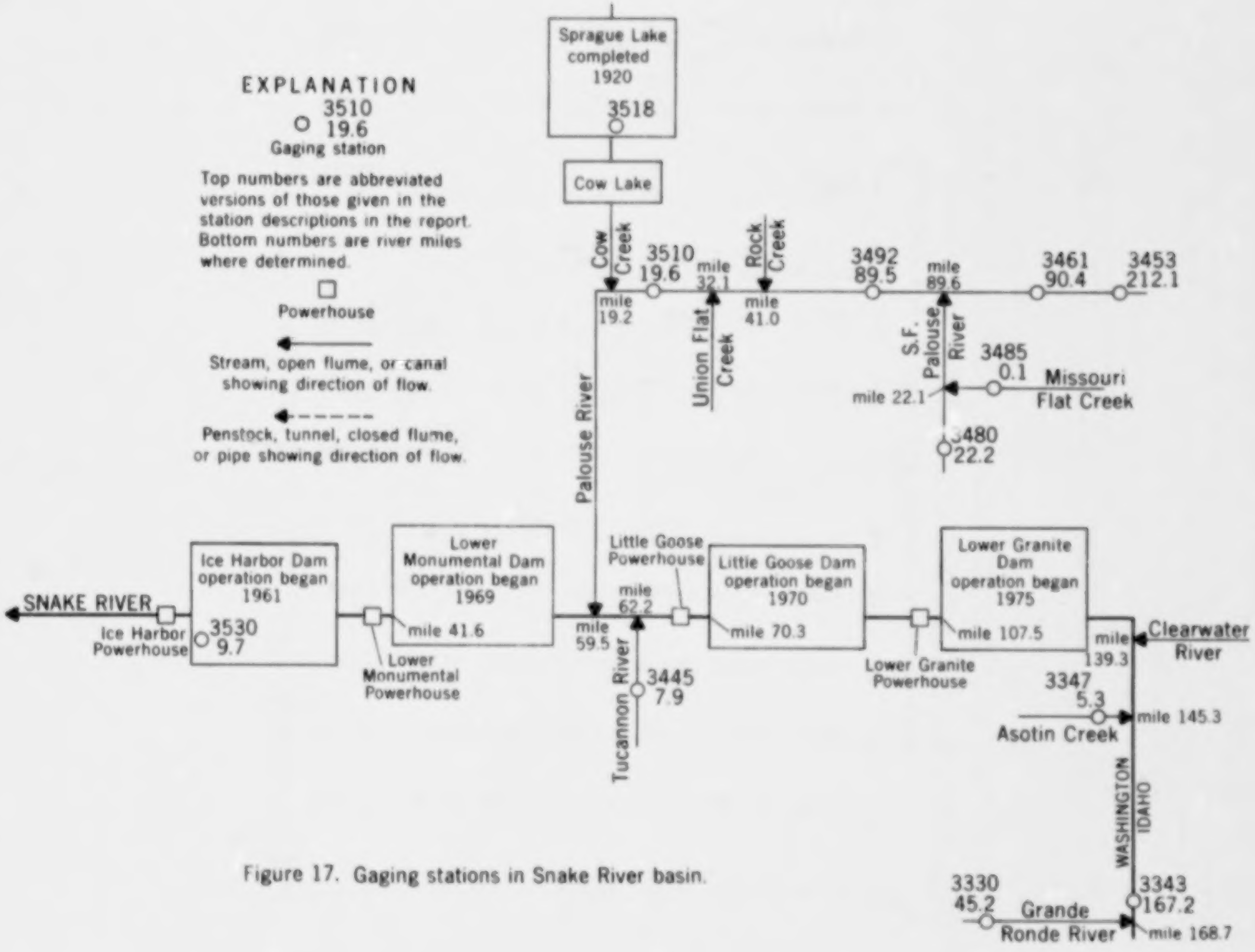
EXPLANATION
3510
19.6
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
Sprague Lake completed 1920
3518
Cow Lake
Cow Creek
mile 19.2
3510 19.6
mile 32.1
Union Flat Creek
Rock Creek
mile 41.0
3492 89.5
mile 89.6
S.F. Palouse River
3485 0.1
Missouri Flat Creek
mile 22.1
3480 22.2
3461 90.4
3453 212.1
Palouse River
SNAKE RIVER
Ice Harbor Powerhouse
Ice Harbor Dam operation began 1961
3530 9.7
Lower Monumental Powerhouse
Lower Monumental Dam operation began 1969
mile 41.6
mile 59.5
mile 62.2
Tucannon River
3445 7.9
Little Goose Powerhouse
Little Goose Dam operation began 1970
mile 70.3
Lower Granite Powerhouse
Lower Granite Dam operation began 1975
mile 107.5
mile 139.3
Clearwater River
3347 5.3
Asotin Creek
mile 145.3
WASHINGTON
IDAHO
3343 167.2
3330 45.2
Grande Ronde River
mile 168.7

Figure 17. Gaging stations in Snake River basin.

13333000 GRANDE RONDE RIVER AT TROY, OR

LOCATION.--45°56'47", long 117°26'54", in NE¼NW¼ sec.4, T.5 N., R.43 E., Wallowa County, Hydrologic Unit 17060106, on left bank 500 ft (152 m) downstream from bridge at Troy, 600 ft (183 m) downstream from Wenaha River, and at mile 45.2 (72.7 km).

DRAINAGE AREA.--3,275 mi² (8,482 km²).

PERIOD OF RECORD.--August 1944 to current year. Monthly discharge only August 1944, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1946(M), 1948-50.

GAGE.--Water-stage recorder. Datum of gage is 1,585.98 ft (483.407 m) above mean sea level. Aug. 17, 1944, to Sept. 30, 1949, nonrecording gage at site 500 ft (152 m) upstream at datum 10.85 ft (3.307 m) lower. Oct. 1, 1949, to Sept. 5, 1963, water-stage recorder at site 500 ft (152 m) upstream at datum 1.15 ft (0.351 m) higher.

REMARKS.--Records excellent. Flow slightly regulated by Wallowa Lake (see sta 13326000) and small reservoirs. Diversions for irrigation above station, chiefly in vicinity of La Grande, Enterprise, and Wallowa; one transbasin diversion from Big Sheep and tributaries in Imnaha River basin for irrigation in Wallowa Valley.

AVERAGE DISCHARGE.--33 years, 3,117 ft³/s (88.3 m³/s), 2,258,000 acre-ft/yr (2.78 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,200 ft³/s (1,200 m³/s) Dec. 23, 1964, gage height, 11.25 ft (3.429 m); minimum, 344 ft³/s (9.74 m³/s) Aug. 19, 20, 21, 23, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,420 ft³/s (153 m³/s) June 8, gage height, 5.19 ft (1.582 m), no peak above base of 9,000 ft³/s (255 m³/s); minimum, 344 ft³/s (9.74 m³/s) Aug. 19, 20, 21, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	780	920	676	651	877	807	1150	2930	3000	676	428	835
2	793	920	676	640	821	793	1180	2980	3540	626	409	740
3	849	920	701	640	793	793	1210	2980	3150	602	409	714
4	877	920	767	640	793	780	1270	2720	3030	602	409	676
5	877	877	727	620	767	767	1590	2350	3870	663	409	651
6	863	849	688	614	767	767	2210	2150	4240	688	418	638
7	849	835	767	651	740	821	2980	1980	4450	651	418	602
8	877	821	793	651	740	877	3960	1860	4750	626	428	579
9	849	821	780	701	727	982	4130	1940	4100	602	428	567
10	863	835	753	753	714	997	3710	2000	3260	579	418	567
11	849	835	740	800	780	905	3260	2070	2810	545	418	556
12	835	821	701	840	849	877	2980	1980	2580	545	418	533
13	835	807	638	880	863	863	2960	2020	2440	533	418	511
14	821	807	651	930	835	835	2830	2190	2330	511	409	501
15	807	821	651	951	780	793	2580	2170	2190	490	409	490
16	793	863	676	951	753	780	2530	2110	2070	469	409	479
17	780	891	701	920	753	780	2460	2130	1900	448	390	522
18	780	935	740	891	740	793	2260	2210	1720	459	371	567
19	780	905	701	891	727	835	2070	2280	1540	469	353	579
20	780	877	688	863	714	849	1920	2170	1480	459	344	626
21	793	863	793	835	753	835	1860	2170	1360	448	362	793
22	807	849	753	793	793	849	1860	2210	1210	428	362	780
23	807	835	767	780	767	905	2110	2350	1110	428	362	740
24	821	821	753	753	727	951	2580	2790	997	428	371	807
25	877	821	714	727	727	966	3150	2620	935	438	399	821
26	905	793	753	780	740	951	3440	2550	877	459	522	835
27	849	727	767	753	714	1060	3210	2830	835	490	590	835
28	849	701	740	701	767	1130	2960	2790	793	448	545	877
29	849	676	688	676	---	1080	2910	2720	740	448	556	1280
30	835	701	701	676	---	1050	2910	2620	714	438	767	1470
31	835	---	688	780	---	1060	---	2530	---	428	951	---
TOTAL	25764	25067	22332	23732	21521	27531	76230	73400	68021	16124	13900	21171
MEAN	831	836	720	766	769	888	2541	2368	2267	520	448	706
MAX	905	935	793	951	877	1130	4130	2980	4750	688	951	1470
MIN	780	676	638	614	714	767	1150	1860	714	428	344	479
AC-FT	51100	49720	44300	47070	42690	54610	151200	145600	134900	31980	27570	41990

CAL YR 1976 TOTAL 1269727 MEAN 3469 MAX 16900 MIN 638 AC-FT 2519000
WTR YR 1977 TOTAL 414793 MEAN 1136 MAX 4750 MIN 344 AC-FT 822700

13334000 GRANDE RONDE RIVER AT ZINDEL, WA

LOCATION.--Lat 46°04'13", long 117°00'16", in SW¼NE¼ sec.23, T.7 N., R.46 E., Asotin County, Hydrologic Unit 17060106, at road crossing, 1.5 mi (2.4 km) downstream from Joseph Creek, 2.8 mi (4.5 km) upstream from mouth and 7.5 mi (12.1 km) southeast of Anatone.

DRAINAGE AREA.--3,950 mi² (10,230 km²).

PERIOD OF RECORD.--October 1976 to September 1977 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)
OCT											
13...	1230	978	160	14.4	10	2	10.0	65	0	19	4.3
NOV											
17...	1200	1010	130	9.0	3	2	9.3	60	0	18	3.7
DEC											
16...	1145	978	140	4.4	9	3	13.2	57	0	17	3.5
JAN											
26...	1130	741	110	1.2	11	2	13.3	54	0	17	3.0
FEB											
16...	1130	912	125	5.7	6	8	16.3	53	0	15	3.7
MAR											
23...	1200	804	110	9.3	3	4	14.3	55	0	16	3.7
APR											
20...	1130	818	88	12.4	4	8	11.0	31	0	8.5	2.3
MAY											
18...	1145	864	103	12.5	17	6	14.1	35	0	10	2.4
JUN											
22...	1215	1440	82	22.7	14	10	--	34	0	10	2.3
JUL											
27...	1230	390	80	25.9	--	3	--	50	0	15	3.1
SEP											
28...	1220	446	153	13.1	--	6	12.6	64	0	19	4.0

DATE	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)
OCT										
13...	7.0	2.4	88	0	72	5.8	1.5	.05	.15	.04
NOV										
17...	6.6	2.2	86	0	71	4.8	1.5	.01	.03	.04
DEC										
16...	6.7	2.1	74	0	61	6.1	1.5	.04	.02	.03
JAN										
26...	6.7	2.1	80	0	66	4.2	1.6	.13	.03	.05
FEB										
16...	6.7	2.5	74	0	61	5.2	2.7	.10	.06	.10
MAR										
23...	6.7	2.2	76	0	62	5.7	1.7	.01	.04	.05
APR										
20...	4.2	1.8	44	0	36	2.0	1.0	.04	.07	.08
MAY										
18...	4.3	1.9	48	0	39	2.8	.9	.01	.06	.06
JUN										
22...	4.4	1.9	51	0	42	.6	.8	.01	.04	.05
JUL										
27...	5.7	2.8	69	0	57	4.5	1.2	.01	.06	.04
SEP										
28...	6.6	2.5	87	0	71	4.0	1.3	.00	.03	.05

13334000 GRANDE RONDE RIVER AT ZINDEL, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT										
13...	.01	--	--	0	1	13	.0	--	--	0
NOV										
17...	.01	--	--	0	1	8	.1	--	--	0
DEC										
16...	.01	--	--	0	1	23	.0	--	--	10
JAN										
26...	.03	--	--	0	1	35	.7	--	--	0
FEB										
16...	.06	--	--	0	1	45	.2	--	--	10
MAR										
23...	.03	--	--	0	2	45	.0	--	--	0
APR										
20...	.03	--	--	0	0	80	.0	--	--	0
MAY										
18...	.02	--	--	<10	2	51	.0	--	--	0
JUN										
22...	.04	--	--	0	1	14	.2	--	--	0
JUL										
27...	.04	--	--	0	1	22	.1	--	--	0
SEP										
28...	.01	100	5	--	0	--	.0	0	0	10

13334300 SNAKE RIVER NEAR ANATONE, WA

LOCATION.--Lat 46°05'50", long 116°58'36", in SE¼NE¼ sec.12, T.7 N., R.46 E., Asotin County, Hydrologic Unit 17060103, on left bank 1.2 mi (1.9 km) downstream from Grande Ronde River, 7.8 mi (12.6 km) east of Anatone, 22 mi (35.4 km) south of Clarkston and at mile 167.2 (269.0 km).

DRAINAGE AREA.--92,960 mi² (241,000 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1958 to current year.

REVISED RECORDS.--WDR WA-76-2: 1974 and 1975.

GAGE.--Water-stage recorder. Datum of gage is 806.78 ft (245.907 m) above mean sea level.

REMARKS.--Records good. Diversions above station for irrigation of about 4,000,000 acres (16,200 km²) of which about 750,000 acres (3,040 km²) are by withdrawal from ground water. Flow regulated by many reservoirs above station with a total usable capacity of more than 10,000,000 acre-feet (12,300 hm³), the most effective of which is Brownlee Reservoir 106.5 mi (171.4 km) upstream (see sta 13289700). Diurnal fluctuations caused by Hells Canyon powerplant.

AVERAGE DISCHARGE.--19 years, 36,300 ft³/s (1,028 m³/s), 26,300,000 acre-ft/yr (32,400 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 195,000 ft³/s (5,520 m³/s) June 18, 1974, gage height, 24.45 ft (7.452 m); minimum, 6,010 ft³/s (170 m³/s) Sept. 2, 1958, gage height, 1.29 ft (0.393 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,000 ft³/s (1,080 m³/s) June 7 gage height, 9.93 ft (3.027 m); minimum, 8,430 ft³/s (239 m³/s) Sept. 12 gage height, 2.13 ft (0.649 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25500	19600	24600	21100	21000	17000	19600	24500	22100	15000	10100	12900
2	22500	22000	25100	21900	18000	15000	15000	26200	25400	15500	11000	10500
3	20000	22000	24900	25600	19300	16100	15700	32900	25700	15600	10700	10000
4	20600	23400	25200	23000	19200	16900	14400	26500	25100	15500	12200	9700
5	23900	23400	26000	22500	19100	17000	14700	23400	27600	14000	9930	9630
6	24400	24400	25900	22600	18800	19100	19500	21000	31000	14300	9570	9660
7	24600	24500	27600	24000	19000	17000	16600	17000	36000	14400	9600	13100
8	22400	22000	25000	23400	20400	18400	18300	19500	35400	13000	9660	11200
9	23200	24000	25700	23700	20100	17400	20000	15100	35400	13400	9630	9040
10	22000	23000	27100	23500	18100	20700	20600	15400	29100	13000	11600	8730
11	26000	23300	27500	24000	16900	20200	22300	18500	26800	12600	11000	8840
12	26700	24000	25000	24400	15600	18000	22600	20000	28600	13600	9660	8550
13	26600	24000	20500	22100	14800	17100	21300	17900	27900	14500	9040	8520
14	26500	23500	20400	21400	15200	20400	20400	18200	26100	13000	9650	10500
15	26100	24500	20400	19500	15200	20600	19800	19200	25700	11000	9240	10500
16	20500	21300	25100	24300	15400	20000	16600	18000	24000	10700	11700	8760
17	27300	20600	22500	23300	15600	18900	15200	19600	22400	10600	14400	8820
18	27400	19600	21000	25700	20600	19500	15100	19200	21200	11400	11100	8270
19	26700	21500	20100	24100	15200	19300	15500	19600	20100	10500	9030	9570
20	26100	22000	21100	22500	13000	20300	14400	18700	19300	11600	8760	8750
21	23000	23000	23000	22000	13700	18200	14200	18400	23400	11600	8700	12400
22	24300	22500	22900	21900	16000	17700	15900	18600	22000	12500	8760	13500
23	25500	22000	21000	21500	15500	15300	16100	19000	21700	13200	8700	13100
24	24400	23200	20900	21100	15500	16200	17000	20000	20500	11200	10000	13000
25	21700	22100	18700	23000	17000	18300	18900	22600	21000	11000	11200	13000
26	22100	21400	16000	23200	16900	18000	25100	23300	17200	11900	9470	13900
27	20600	25400	18400	21400	15400	18700	25900	22900	15000	13100	9600	14000
28	24100	27300	20200	21200	15400	21300	20600	22700	15400	14200	9010	14200
29	22500	24500	21700	21600	---	24300	26700	22300	17000	11400	9040	15000
30	20600	24500	21600	19100	---	21100	25700	21400	16600	10600	9000	17200
31	19100	---	22900	18600	---	18600	---	20700	---	10400	12300	---
TOTAL	741700	692500	728700	692600	478600	576000	566600	639000	731500	372900	317800	338400
MEAN	23930	23080	23510	22340	17090	18600	18880	20610	24380	12030	10250	11280
MAX	27400	27300	27600	25700	21000	24300	26700	32900	36000	15600	14400	17200
MIN	19100	19600	16000	18600	13000	15300	14200	15100	15000	10400	8700	8520
AC-FT	1471000	1374000	1445000	1374000	949300	1142000	1123000	1267000	1451000	740000	630500	671100

CAL YR 1976 TOTAL 16036000 MEAN 43820 MAX 122000 MIN 16000 AC-FT 31810000
WTR YR 1977 TOTAL 6903720 MEAN 18910 MAX 36000 MIN 8520 AC-FT 13690000

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1959 to current year.

INSTRUMENTATION.--Temperature recorder since October 1959.

COOPERATION.--Temperature records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum (1959-68, 1970-77), 25°C Aug. 11, 1960, Aug. 13, 1965, July 16, 1973; minimum, 0.0°C Jan. 25, 26, 1962, Dec. 22, 1964, Jan. 15, 1975.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 23.5°C July 27, Aug. 15, 20; minimum, 0.5°C Jan. 30, 31.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	AIR TEMPERATURE (DEG C)	*TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	CHEMICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	FECAL COLIFORM .7UM-MF (COL./100 ML)	BICARBONATE (HCO3) (MG/L)
OCT												
22...	0930	20500	302	7.6	11.5	13.0	3	9.9	97	7	<1	170
NOV												
17...	0930	19200	406	8.0	15.0	12.5	3	10.8	106	16	<1	180
DEC												
15...	1000	27000	455	8.0	6.5	6.5	6	11.9	113	10	<1	180
JAN												
12...	1605	19100	302	--	5.0	5.0	2	13.0	111	10	81	150
FEB												
16...	1100	15200	342	8.1	16.0	6.0	2	13.5	111	8	33	--
MAR												
16...	1015	19900	303	7.6	9.5	6.5	2	13.1	109	8	<1	180
APR												
13...	1130	20700	333	8.1	13.5	11.0	3	10.6	98	10	<1	180
MAY												
11...	0915	10500	172	8.0	14.5	12.5	2	13.1	126	10	--	160
JUN												
09...	1000	33000	190	8.0	23.5	20.0	10	8.8	98	5	>600	100
JUL												
26...	1600	11200	513	7.1	30.0	20.5	2	9.1	121	32	57	85
AUG												
23...	0930	8250	367	8.2	19.5	21.0	1	8.0	92	32	<1	5
SEP												
22...	0930	13700	326	7.8	13.5	16.0	2	9.1	96	16	20	150

* Temperatures taken at water surface.
B Results based upon colony counts outside the ideal range.

DATE	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
OCT												
22...	0	139	19	225	.31	12500	.68	.00	.30	.30	1.1	.05
NOV												
17...	0	140	16	212	.29	11000	.68	.00	1.0	1.0	1.7	.06
DEC												
15...	0	123	23	280	.39	21000	.01	.06	.91	.95	1.0	.07
JAN												
12...	--	--	26	260	.36	13800	.06	.05	.32	.37	1.3	.03
FEB												
16...	0	140	22	249	.34	10200	.70	.00	.40	.40	1.1	.03
MAR												
16...	0	140	22	270	.37	14500	.75	.01	.42	.43	1.2	.08
APR												
13...	0	131	21	217	.30	12100	.54	.01	.07	.08	.62	.05
MAY												
11...	0	82	15	121	.16	5200	.26	.00	.00	.00	.26	.02
JUN												
09...	0	70	13	112	.15	9980	.18	.06	16	16	16	.07
JUL												
26...	0	6	16	191	.26	5700	.21	.00	.35	.35	.56	.03
AUG												
23...	0	131	15	230	.31	5190	.29	.01	.43	.44	.73	.06
SEP												
22...	0	123	17	221	.30	8170	.33	.01	.18	.19	.52	.04

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	OIL AND GREASE (MG/L)
OCT											
22...	6	<10	0	70	130	<100	.0	1	30	2.1	1
NOV											
17...	4	<10	0	120	180	100	.0	1	30	1.8	0
DEC											
15...	4	<10	0	140	60	<100	.0	1	30	1.9	0
JAN											
12...	6	<10	0	200	70	<100	.1	1	40	1.7	0
FEB											
16...	4	<10	0	10	60	<100	.0	1	0	1.9	0
MAR											
16...	7	<10	0	170	80	<100	.6	1	40	1.5	0
APR											
13...	4	<10	10	100	280	<100	.9	0	10	2.3	0
MAY											
11...	2	<10	0	390	160	100	.6	0	90	1.9	0
JUN											
09...	2	<10	10	30	1400	<100	4.0	0	0	2.6	0
JUL											
26...	4	<10	0	70	50	<100	1.4	0	50	3.3	0
AUG											
23...	3	<10	20	40	90	<100	.4	0	20	2.6	0
SEP											
22...	6	<10	10	<10	80	<100	.4	0	30	2.0	0

DATE	TIME	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
NOV											
17...	0930	140	0	34	13	29	31	1.1	3.8	39	18
FEB											
16...	1100	150	2	37	14	25	26	.9	3.5	39	22
APR											
13...	1130	120	0	30	11	21	27	.8	3.2	32	13
MAY											
11...	0915	78	0	21	6.3	13	26	.6	2.0	28	9.5
AUG											
23...	0930	130	0	29	13	31	34	1.2	4.1	48	14

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM	SUS. SED. SIEVE DIAM. % FINER THAN .125 MM
OCT							
22...	0930	20500	13.0	4	221	94	100

13334300 SNAKE RIVER NEAR ANATONE, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	18.5	18.0	11.5	11.5	7.0	6.5	4.0	3.5	1.0	1.0	4.0	4.0
2	18.5	17.5	12.0	11.5	6.5	6.5	3.5	3.5	1.5	1.0	4.0	4.0
3	17.5	16.5	12.0	11.5	6.5	6.0	3.5	3.5	1.5	1.0	4.5	4.0
4	16.5	15.5	12.0	12.0	6.5	6.0	3.5	3.0	1.5	1.0	4.5	3.5
5	16.5	16.0	12.0	11.5	6.5	6.0	3.0	3.0	1.5	1.0	4.5	3.5
6	17.0	16.0	12.0	11.5	6.5	6.0	3.0	2.5	1.5	1.0	4.5	4.0
7	17.0	16.5	12.0	11.5	6.5	6.5	3.0	2.5	2.0	1.0	5.0	4.5
8	16.5	15.5	12.0	11.5	6.5	6.0	2.5	2.5	2.0	1.0	5.0	4.5
9	16.5	16.0	12.0	11.5	6.5	6.5	3.0	2.5	2.5	1.5	5.0	4.5
10	16.5	16.0	12.0	11.5	6.5	6.5	2.5	2.0	2.5	2.0	5.0	4.0
11	17.0	16.0	11.5	11.0	6.5	6.0	3.0	2.5	3.5	2.5	4.5	4.0
12	16.5	16.0	11.5	10.5	6.5	6.0	3.0	2.5	3.0	3.0	4.0	4.0
13	16.5	16.0	11.0	10.0	6.0	6.0	2.5	2.5	4.0	3.0	4.0	4.0
14	16.0	15.5	10.0	9.0	6.0	5.5	2.5	2.0	3.5	3.0	4.5	3.5
15	16.0	15.5	10.0	9.5	6.0	5.5	2.0	2.0	3.0	2.5	4.5	3.5
16	15.5	15.0	10.0	9.5	6.0	5.5	2.0	2.0	3.5	3.0	4.5	4.0
17	15.0	14.5	10.5	10.0	5.5	5.0	2.5	2.0	3.5	3.0	4.5	4.0
18	14.5	14.0	10.0	8.5	5.5	4.5	2.5	2.0	4.0	3.0	4.5	4.0
19	14.0	13.5	10.0	9.0	4.5	4.5	2.5	2.0	4.0	3.5	5.0	4.5
20	13.5	13.0	9.5	8.0	4.5	4.5	2.0	2.0	4.0	3.5	5.0	4.5
21	13.0	12.5	8.5	8.0	5.0	4.5	2.0	2.0	4.0	3.5	5.0	4.5
22	13.0	12.5	9.0	8.5	5.0	4.5	2.0	1.5	3.5	3.5	6.5	5.0
23	13.0	12.5	9.0	8.0	5.0	4.5	2.0	1.5	4.0	3.5	6.5	5.5
24	12.5	12.5	9.0	8.5	4.5	4.0	2.0	1.5	4.0	3.0	6.5	5.5
25	12.5	11.5	9.0	8.5	4.5	4.0	2.0	1.5	3.5	3.0	6.5	5.5
26	12.5	11.5	8.5	8.0	4.0	4.0	1.5	1.0	4.0	3.0	6.5	6.0
27	12.0	11.5	8.0	7.0	4.5	4.0	1.5	1.0	4.0	3.0	6.0	5.5
28	12.5	11.5	7.5	7.0	4.5	4.0	1.5	1.0	4.0	3.5	6.0	5.0
29	12.5	12.0	7.5	7.0	4.0	3.5	1.0	1.0	---	---	5.5	5.0
30	12.5	11.5	7.5	6.5	4.0	3.5	1.0	0.5	---	---	6.5	5.0
31	12.0	11.5	---	---	4.0	3.5	1.0	0.5	---	---	6.5	6.0
MONTH	18.5	11.5	12.0	6.5	7.0	3.5	4.0	0.5	4.0	1.0	6.5	3.5

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.0	6.0	13.5	12.5	16.0	15.0	20.5	19.5	23.0	21.0	19.0	17.0
2	7.0	6.0	13.0	13.0	15.5	14.5	20.0	19.0	22.5	21.5	19.0	18.0
3	8.0	6.5	13.0	12.0	15.0	14.0	20.0	19.0	23.0	21.5	19.5	18.5
4	9.0	7.0	12.0	10.5	16.5	14.5	19.0	18.0	22.5	21.0	20.5	19.0
5	10.5	8.0	11.5	10.5	18.5	16.0	18.5	17.5	23.0	21.5	21.5	20.0
6	11.0	9.0	11.5	10.5	18.5	17.0	19.0	17.5	23.0	21.5	21.5	20.0
7	11.5	10.0	12.0	11.0	18.5	16.5	19.5	18.0	23.0	21.5	21.0	20.0
8	11.0	10.0	12.5	11.5	18.5	17.0	20.0	18.5	23.0	21.5	20.5	19.0
9	10.0	9.0	13.5	12.0	17.5	16.0	20.0	19.0	23.0	21.5	20.5	18.5
10	10.0	8.5	13.5	12.5	16.5	15.5	20.5	18.5	22.5	21.5	20.0	18.5
11	9.5	8.5	13.5	12.5	17.0	15.5	20.5	19.0	23.0	21.5	20.0	18.5
12	10.5	9.0	13.5	12.5	18.0	16.0	20.5	19.5	23.0	21.5	20.0	18.5
13	10.0	9.5	14.5	13.0	17.0	16.5	20.0	19.0	23.5	21.5	20.0	18.5
14	10.0	9.0	14.0	13.5	17.0	16.0	20.5	19.0	23.0	22.0	20.0	18.5
15	9.5	9.0	13.5	12.5	17.5	16.0	21.5	19.5	23.0	22.0	20.0	19.0
16	10.5	9.5	12.5	11.5	18.5	17.0	22.0	20.0	23.0	21.5	19.0	18.5
17	11.0	9.5	11.5	11.0	19.0	17.5	21.0	20.5	22.5	21.5	18.5	17.5
18	10.0	9.0	11.5	11.0	20.0	18.0	20.5	20.0	23.0	21.5	18.5	17.5
19	10.0	9.0	12.5	11.0	20.0	19.0	20.5	19.0	23.0	21.5	18.0	17.5
20	11.0	9.0	13.5	12.0	19.5	18.5	21.5	19.5	23.5	21.5	18.0	17.5
21	11.0	9.5	14.0	13.0	19.5	18.0	22.0	19.5	23.0	22.0	17.5	17.0
22	12.5	10.0	15.0	13.5	20.0	18.5	22.5	20.5	22.5	21.5	17.0	16.5
23	13.5	11.5	14.5	14.0	19.5	18.5	22.5	21.0	22.0	21.0	16.0	15.5
24	14.0	12.5	14.0	13.5	20.0	18.5	21.5	21.0	21.5	20.5	16.0	15.0
25	13.5	13.0	14.0	12.5	20.5	19.0	22.0	20.5	21.0	20.0	16.0	15.0
26	13.0	12.0	13.5	13.0	20.5	19.5	22.5	21.0	20.5	19.5	16.5	15.0
27	13.0	12.0	13.0	12.0	21.5	20.0	23.5	21.5	20.0	19.0	16.0	15.5
28	13.0	11.5	12.5	11.5	20.5	19.5	22.5	21.5	19.5	19.0	15.5	15.5
29	13.5	12.0	13.5	11.5	20.5	19.0	22.5	20.5	19.0	18.5	16.0	15.5
30	13.5	12.5	13.5	12.5	20.5	19.5	22.0	20.5	18.5	18.0	15.5	14.5
31	---	---	15.0	13.0	---	---	22.5	20.5	18.0	17.5	---	---
MONTH	14.0	6.0	15.0	10.5	21.5	14.0	23.5	17.5	23.5	17.5	21.5	14.5
YEAR	23.5	0.5										

13334700 ASOTIN CREEK BELOW KEARNEY GULCH, NEAR ASOTIN, WA

LOCATION.--Lat 46°19'35", long 117°09'06", in SW¼SE¼ sec.22, T.10 N., R.45 E., Asotin County, Hydrologic Unit 17060103, on left bank 0.3 mi (0.5 km) downstream from Kearney Gulch, 2.5 mi (4.0 km) upstream from George Creek, 5.0 mi (8.0 km) west of Asotin, and at mile 5.3 (8.5 km).

DRAINAGE AREA.--170 mi² (440 km²).

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,090 ft (332 m), from topographic map.

REMARKS.--Records good. No regulation. Several diversions for irrigation. Prior to Nov. 20, 1959, at a point 3.3 mi (5.3 km) upstream, the city of Clarkston diverted about 30 ft³/s (0.85 m³/s) for municipal use and irrigation. Natural low flows nearly equivalent to those of former station 3.3 mi (5.3 km) upstream.

AVERAGE DISCHARGE.--18 years, 77.2 ft³/s (2.186 m³/s), 55,930 acre-ft/yr (69.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge about 3,700 ft³/s (105 m³/s) Jan. 15, 1974; maximum gage height, 8.07 ft (2.460 m) Jan. 14, 1974; minimum discharge, 13 ft³/s (0.37 m³/s) Jan. 11, 1963, result of freezeup; minimum gage height, 0.69 ft³/s (0.210 m³/s) Aug. 14, 15, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 220 ft³/s (6.23 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 10	0645	(a)		*2.52	0.768	Sept. 29	1815	*86	2.44	1.15	0.351

Minimum discharge, 26 ft³/s (0.74 m³/s) Aug. 14, 15, gage height, 0.69 (0.210 m).

a Result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	51	40	37	38	41	41	54	49	41	32	37
2	43	47	40	37	38	40	40	60	52	41	32	35
3	42	43	40	38	38	41	40	59	50	41	33	35
4	42	43	40	38	37	40	40	57	49	42	32	34
5	42	43	40	36	37	39	41	55	47	43	32	35
6	40	43	40	37	37	39	44	54	47	41	32	33
7	40	42	42	37	37	40	48	52	49	40	32	33
8	40	42	42	37	38	43	54	50	56	38	32	32
9	40	42	43	36	38	43	57	51	51	38	31	33
10	40	43	40	37	34	41	53	49	49	39	31	32
11	40	43	40	38	40	40	50	49	47	37	31	31
12	39	43	40	38	39	40	49	48	49	35	31	31
13	39	42	40	38	40	40	50	47	51	34	31	31
14	39	42	40	38	40	40	49	49	51	35	31	31
15	39	43	39	39	39	40	47	48	50	34	27	31
16	39	43	40	40	39	40	48	49	47	34	29	30
17	39	43	40	40	39	40	48	50	46	32	29	31
18	40	43	40	42	39	42	46	59	43	36	29	32
19	40	43	39	42	39	42	45	57	44	38	29	32
20	40	42	40	40	39	40	45	54	44	36	29	34
21	40	42	38	39	41	40	46	53	44	36	29	32
22	40	42	39	39	40	40	47	52	44	35	32	33
23	40	42	40	38	40	40	50	57	43	33	31	32
24	40	42	39	38	39	41	55	55	42	34	34	34
25	42	42	39	38	40	40	60	53	42	35	34	34
26	43	42	40	38	40	40	61	53	41	34	34	33
27	42	39	40	38	40	43	58	54	41	33	34	32
28	42	40	39	38	41	42	55	51	40	33	34	37
29	42	40	39	37	---	41	53	51	40	33	34	47
30	42	40	39	37	---	39	54	50	41	33	48	45
31	42	---	38	37	---	40	---	48	---	33	44	---
TOTAL	1257	1277	1235	1182	1086	1257	1474	1628	1389	1127	1003	1012
MEAN	40.5	42.6	39.8	38.1	38.8	40.5	49.1	52.5	46.3	36.4	32.4	33.7
MAX	43	51	43	42	41	43	61	60	56	43	48	47
MIN	39	39	38	36	34	39	40	47	40	32	27	30
AC-FT	2490	2530	2450	2340	2150	2490	2920	3230	2760	2240	1990	2010

CAL YR 1976 TOTAL 31644 MEAN 86.5 MAX 403 MIN 37 AC-FT 62770
WTR YR 1977 TOTAL 14927 MEAN 40.9 MAX 61 MIN 27 AC-FT 29610

13335050 ASOTIN CREEK AT ASOTIN, WA

LOCATION.--Lat 46°20'27", long 117°03'18", in SW¼SW¼ sec.16, T.10 N., R.46 E., Asotin County, Hydrologic Unit 17060103, at the city Park Bridge, 0.25 mi (0.4 km) upstream from mouth.

PERIOD OF RECORD.--October 1976 to September 1977 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)
OCT											
13...	1100	45	160	11.4	12	6	12.8	51	0	12	5.2
NOV											
17...	1050	50	100	8.4	12	4	11.7	57	0	15	4.7
DEC											
16...	1045	49	120	3.4	16	4	12.8	52	0	13	4.8
JAN											
26...	1045	51	96	1.0	8	2	14.0	53	0	13	5.1
FEB											
16...	1045	46	100	4.2	10	2	15.7	53	0	13	5.0
MAR											
23...	1050	20	110	14.0	8	2	15.1	53	0	13	5.0
APR											
20...	1030	52	132	13.6	3	2	16.3	51	0	13	4.6
MAY											
18...	1045	72	95	12.0	12	2	10.3	51	0	13	4.4
JUN											
22...	1050	46	125	23.5	18	40	--	55	0	14	4.8
JUL											
27...	1120	32	120	23.9	--	3	--	58	0	15	5.0
AUG											
30...	1100	20	145	15.4	--	4	13.3	55	0	14	4.9
SEP											
28...	1030	50	160	13.2	--	4	12.8	57	0	14	5.3

DATE	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
OCT											
13...	5.2	3.2	82	0	67	2.7	1.6	.01	.18	.09	.06
NOV											
17...	5.1	2.8	74	0	61	3.0	1.3	.02	.04	.07	.03
DEC											
16...	5.2	2.5	77	0	63	3.7	1.4	.19	.03	.07	.06
JAN											
26...	5.2	2.6	74	0	61	3.0	1.4	.29	.02	.09	.07
FEB											
16...	5.3	2.7	73	0	60	4.8	1.1	.26	.03	.09	.08
MAR											
23...	5.5	2.7	73	0	60	4.8	1.6	.13	.04	.08	.07
APR											
20...	5.4	2.9	72	0	59	2.7	1.4	.05	.04	.08	.06
MAY											
18...	4.9	2.9	68	0	56	2.8	1.3	.05	.05	.08	.06
JUN											
22...	5.4	3.2	76	0	62	4.3	1.6	.02	.10	.09	.05
JUL											
27...	6.3	3.7	85	0	70	2.9	1.8	.01	.04	.07	.06
AUG											
30...	4.8	3.8	74	0	61	2.5	1.8	.02	.07	.14	.08
SEP											
28...	5.2	3.3	80	0	66	3.5	1.4	.01	.02	.07	.05

13335050 ASOTIN CREEK AT ASOTIN, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT										
13...	--	--	--	0	6	23	.0	--	--	20
NOV										
17...	--	--	--	0	2	11	.0	--	--	0
DEC										
16...	--	--	--	0	1	31	.0	--	--	10
JAN										
26...	--	--	--	0	1	23	.0	--	--	0
FEB										
16...	--	--	--	0	0	31	.1	--	--	10
MAR										
23...	--	--	--	0	2	45	.0	--	--	10
APR										
20...	--	--	--	0	0	53	.0	--	--	10
MAY										
18...	--	--	--	0	1	61	.0	--	--	10
JUN										
22...	--	--	--	0	1	12	.1	--	--	0
JUL										
27...	--	--	--	0	1	19	.5	--	--	0
AUG										
30...	--	--	--	10	3	34	.0	--	--	0
SEP										
28...	0	0	0	0	2	59	.0	0	0	0

SNAKE RIVER BASIN

13343600 SNAKE RIVER BELOW LOWER GRANITE DAM, WA
(National Water Quality Surveillance System)

LOCATION.--Lat 46°40'04", long 117°26'38", in NE¼SE¼ sec.30, T.14 N., R.43 E., Garfield County, Hydrologic Unit 17060107, 1.0 mi (1.6 km) below Lower Granite Dam, 16 mi (25.7 km) northeast of Pomeroy, and at mile 106.5 (171.4 km).

DRAINAGE AREA.--103,500 mi² (268,100 km²), approximately.

PERIOD OF RECORD.--Water years 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	CLOUD COVER (PER-CENT)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	CHEM-ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	FECAL COLI-FORM .7UM-MF (COL./ 100 ML)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)
OCT												
07...	1300	48300	264	7.9	0	17.0	1	8.6	27	<1	16	145
NOV												
05...	1230	33200	318	8.2	100	12.0	2	10.0	16	<1	16	214
DEC												
16...	1215	47400	318	8.2	50	6.4	1	12.1	16	1	20	209
FEB												
11...	1145	39700	308	9.0	85	2.7	1	13.2	0	40	20	193
MAR												
15...	1200	30700	396	8.3	80	4.9	1	12.6	22	80	19	215
APR												
11...	1145	48800	322	8.2	75	8.3	1	12.9	7	8	18	202
MAY												
10...	1215	36100	123	7.5	100	11.2	2	11.0	10	4	12	83
JUN												
03...	1130	63400	112	7.6	75	12.8	0	10.1	12	1	13	82
JUL												
15...	1300	37900	194	8.1	0	19.0	0	7.6	22	1	--	--
AUG												
15...	1415	27200	271	8.2	10	23.2	1	7.5	22	2	13	170
SEP												
09...	1340	20600	296	8.0	0	20.0	0	10.0	16	5	14	173

13343600 SNAKE RIVER BELOW LOWER GRANITE DAM, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	DIS- SOLVED SOLIDS (TONS PER AC-FT)	DIS- SOLVED SOLIDS (TONS PER DAY)	SUS- PENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL ORGANIC NITRO- GEN (N) (MG/L)	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (N) (MG/L)	TOTAL NITRO- GEN (NO3) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT												
07...	.20	15000	9	.45	.06	.18	.24	.69	3.1	.05	.03	1.6
NOV												
05...	.29	19200	7	.50	.05	.23	.28	.78	3.5	.10	.04	1.9
DEC												
16...	.28	26700	1	.63	.06	.20	.26	.89	3.9	.05	.02	1.6
FEB												
11...	.26	20700	7	.54	.05	.18	.23	.77	3.4	.03	.01	4.7
MAR												
15...	.29	17000	0	.55	.05	.65	.70	1.2	5.5	.03	.01	2.5
APR												
11...	.27	26600	6	.42	.07	.27	.34	.76	3.4	.04	.01	2.9
MAY												
10...	.11	8090	2	.21	.05	.18	.23	.44	1.9	.03	.01	3.1
JUN												
03...	.11	14000	3	.10	.07	.09	.16	.26	1.2	.02	.01	2.3
JUL												
15...	--	--	--	.08	.14	.08	.22	.30	1.3	.02	.00	2.0
AUG												
15...	.23	12500	0	.21	.04	.23	.27	.48	2.1	.04	.02	2.3
SEP												
09...	.24	9620	6	.23	.05	.19	.24	.47	2.1	.03	.02	2.1

DATE	TIME	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	TOTAL CAL- CIUM (CA) (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	TOTAL MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	PERCENT SODIUM
DEC										
16...	1215	110	0	25	27	11	11	23	23	30
FEB										
11...	1145	110	4	27	28	10	9.8	21	20	28
JUN										
03...	1130	45	1	13	12	3.5	3.6	8.4	8.4	28
SEP										
09...	1340	97	0	22	24	8.9	9.1	25	24	34

DATE	SODIUM AD- SORP- TION RATIO	TOTAL PO- TAS- SIUM (K) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)
DEC										
16...	.9	2.8	3.1	139	0	114	1.4	34	14	201
FEB										
11...	.8	2.8	2.7	129	0	106	.2	32	15	191
JUN										
03...	.5	1.3	1.4	54	0	44	2.2	11	4.8	81
SEP										
09...	1.1	3.0	3.3	120	0	98	1.9	35	11	180

DATE	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD- MIUM (CD) (UG/L)	TOTAL CHRO- MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL SELE- NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)
DEC									
16...	4	<10	0	<10	140	<100	--	1	10
FEB									
11...	3	<10	0	10	90	<100	.0	0	20
JUN									
03...	1	<10	10	<10	120	<100	.0	0	20
SEP									
09...	2	<10	0	<10	20	<100	.0	0	10

13344500 TUCANNON RIVER NEAR STARBUCK, WA

LOCATION.--Lat 46°30'17", long 118°03'55", in NE¼SW¼ sec.21, T.12 N., R.38 E., Columbia County, Hydrologic Unit 17060107, on right bank 180 ft (55 m) downstream from county road bridge, 0.5 mi (0.8 km) downstream from Smith Hollow, 3.0 mi (4.8 km) east of Starbuck, 3.5 mi (5.3 km) downstream from Pataha Creek, and at mile 7.9 (12.7 km).

DRAINAGE AREA.--431 mi² (1,116 km²).

PERIOD OF RECORD.--October 1914 to September 1917, August 1928 to September 1931, October 1958 to current year. Monthly discharge only for October and November 1914, published in WSP 1317. Water temperatures October 1962 to June 1970, sediment records October 1962 to June 1970.

REVISED RECORDS.--WSP 1347: 1930.

GAGE.--Water-stage recorder. Altitude of gage is 730 ft (223 m), from topographic map. Nov. 8, 1914, to Sept. 30, 1917, nonrecording gage at site 2.8 mi (4.5 km) upstream at different datum. Aug. 9, 1928, to Sept. 30, 1931, nonrecording gages at site 2.5 mi (4.0 km) upstream at various datums.

REMARKS.--Records fair. Many small diversions for irrigation above the station.

AVERAGE DISCHARGE.--25 years (water years, 1915-17, 1929-31, 1959-77), 178 ft³/s (5.041 m³/s), 129,000 acre-ft/yr (159 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,980 ft³/s (226 m³/s) Dec. 22, 1964, gage height, 9.84 ft (2.999 m), from rating curve extended above 2,500 ft³/s (70.8 m³/s) on basis of slope-area measurement of peak flow; minimum, 15 ft³/s (0.42 m³/s) July 11, 12, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 700 ft³/s (19.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	(m³/s)	Gage height (ft)	(m)
Nov. 1	2000	*161	4.56	*0.99	0.302

Minimum daily discharge, 38 ft³/s (1.08 m³/s) Aug. 17-23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	133	102	108	102	108	104	97	91	52	52	102
2	87	128	102	95	102	106	106	97	89	50	43	95
3	93	117	106	104	102	108	106	102	93	54	45	83
4	89	115	110	104	102	104	104	102	87	54	46	80
5	93	110	110	80	102	100	106	91	83	64	66	59
6	93	110	110	56	100	102	112	87	87	62	45	66
7	93	108	117	54	100	102	119	87	87	61	42	69
8	93	110	115	54	100	119	133	87	83	54	43	66
9	93	108	117	54	100	122	146	85	82	50	40	69
10	93	110	110	54	102	117	146	85	85	50	40	69
11	93	110	112	80	102	110	136	97	83	53	39	70
12	93	108	108	104	104	108	122	89	82	49	39	67
13	93	108	110	126	102	108	119	85	76	49	39	67
14	93	108	106	115	102	106	119	82	74	48	40	67
15	93	110	112	110	102	102	117	85	66	46	40	69
16	93	108	112	119	104	100	115	85	64	45	39	66
17	93	110	106	119	104	97	115	85	66	46	38	72
18	95	112	112	124	104	95	112	117	61	58	38	70
19	97	110	108	117	102	100	108	112	61	53	38	74
20	97	115	108	115	102	97	100	97	64	50	38	74
21	100	115	110	110	106	95	97	93	64	50	38	78
22	100	112	110	108	108	93	97	97	64	48	38	78
23	100	112	115	108	104	95	110	108	59	45	38	78
24	100	112	110	106	102	100	117	106	52	49	40	91
25	108	110	108	104	102	97	122	95	49	52	39	85
26	117	110	122	104	104	97	126	97	49	45	52	83
27	110	102	115	102	104	100	110	97	52	45	56	83
28	108	108	110	102	106	104	106	97	52	42	56	89
29	106	110	112	102	---	102	100	93	48	45	62	97
30	106	102	110	100	---	97	97	89	50	45	124	97
31	106	---	108	102	---	97	---	85	---	46	119	---
TOTAL	3015	3341	3423	3040	2876	3188	3427	2911	2103	1560	1512	2313
MEAN	97.3	111	110	98.1	103	103	114	93.9	70.1	50.3	48.8	77.1
MAX	117	133	122	126	108	122	146	117	93	64	124	102
MIN	87	102	102	54	100	93	97	82	48	42	38	59
AC-FT	5980	6630	6790	6030	5700	6320	6800	5770	4170	3090	3000	4590

CAL YR 1976 TOTAL 80453 MEAN 220 MAX 775 MIN 87 AC-FT 159600
WTR YR 1977 TOTAL 32709 MEAN 89.6 MAX 146 MIN 38 AC-FT 64880

13345300 PALOUSE RIVER AT PALOUSE, WA

LOCATION.--Lat 46°54'36", long 117°04'12", in SW¼NW¼ sec.6, T.16 N., R.46 E., Whitman County, Hydrologic Unit 17060108, on right bank at State Highway 6, 0.3 mi (0.5 km) east of the intersection of State Highways 6, 27, and 272 in Palouse and at mile 212.1 (194.8 km).

DRAINAGE AREA.--360 mi² (932 km²), approximately.

PERIOD OF RECORD.--May 1973 to current year. Chemical analyses October 1974 to September 1975, sediment records September 1961 to August 1964 (published as 13345400).

GAGE.--Water-stage recorder. Datum of gage is 2,412.62 ft (735.367 m) above mean sea level (Corps of Engineers reference mark).

REMARKS.--Records fair. Small diversions for irrigation upstream from station. Low flows regulated by millpond at Potlatch, Idaho.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,300 ft³/s (320 m³/s) Jan. 16, 1974, gage height, 16.08 ft (4.901 m); no flow Aug. 26 to Sept. 9, 1973, and Aug. 21-27, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 988 ft³/s (28.0 m³/s) Jan. 19, gage height, 4.44 ft (1.353 m); no flow Aug. 21-27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	26	22	21	14	67	75	48	57	.63	5.3	14
2	12	27	20	18	14	55	75	45	51	1.0	5.3	14
3	16	43	19	16	13	51	79	63	54	2.6	5.3	13
4	28	39	18	14	14	39	77	77	49	2.9	5.3	12
5	30	34	17	12	15	35	102	72	49	2.9	5.3	11
6	25	30	17	11	16	32	176	60	47	2.9	4.4	12
7	19	28	20	11	17	36	235	51	37	3.7	4.4	12
8	18	26	31	12	19	96	300	47	34	5.7	4.0	11
9	16	26	45	11	34	206	328	44	31	5.7	4.0	11
10	16	26	51	12	45	220	275	44	28	4.4	4.4	9.5
11	15	24	48	12	84	144	210	45	24	4.9	3.7	8.4
12	15	23	30	13	108	112	176	65	22	4.5	2.9	8.4
13	14	22	32	14	136	84	158	52	19	4.4	2.9	7.5
14	14	21	27	14	124	55	178	45	18	4.4	4.0	7.9
15	12	18	23	15	100	66	164	44	16	4.4	3.2	7.9
16	14	20	26	26	98	57	140	41	12	4.0	1.8	7.9
17	14	23	25	127	72	54	136	39	11	4.4	2.1	7.9
18	14	30	21	538	62	50	126	47	10	5.7	1.5	8.4
19	16	36	16	562	55	44	108	79	8.6	6.2	1.0	11
20	17	40	19	198	50	48	93	92	5.7	11	.44	14
21	17	34	19	119	60	43	84	84	4.9	8.9	.00	14
22	18	27	18	104	75	43	77	70	6.2	7.5	.00	14
23	19	24	18	70	80	42	76	61	4.9	7.0	.00	15
24	19	24	21	50	58	56	86	58	2.6	6.2	.00	15
25	23	24	21	29	60	68	100	61	1.2	5.7	.00	15
26	31	23	27	20	39	66	102	55	.26	5.7	.00	16
27	57	20	38	16	48	72	93	60	1.0	8.4	.00	16
28	43	18	46	14	35	100	76	77	1.0	11	11	15
29	34	19	43	13	---	84	63	69	.63	8.4	14	15
30	28	20	36	13	---	72	55	79	.63	7.9	14	15
31	26	---	33	14	---	69	---	69	---	6.6	13	---
TOTAL	651	795	867	2119	1545	2256	4023	1843	606.42	169.63	123.24	358.8
MEAN	21.0	26.5	27.3	68.4	55.2	72.7	134	59.5	20.2	5.47	3.98	12.0
MAX	57	43	51	562	136	220	328	92	57	11	14	16
MIN	11	18	16	11	13	32	55	39	.26	.63	.00	7.5
AC-FT	1290	1580	1680	4200	3060	4470	7980	3660	1200	336	244	712

CAL YR 1976 TOTAL 114904.50 MEAN 314 MAX 2600 MIN 5.3 AC-FT 227900
WTR YR 1977 TOTAL 15335.09 MEAN 42.0 MAX 562 MIN .0 AC-FT 30420

13346050 PALOUSE RIVER ABOVE BUCK CANYON AT COLFAX, WA

LOCATION.--Lat 46°54'28", long 117°20'14", in NW¼SE¼ sec.1, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, at road bridge 0.6 mi (1.0 km) upstream from Buck Canyon, and 0.8 mi (1.3 km) northeast of Colfax city limits, 1.2 mi (1.9 km) upstream from gaging station and 1.8 mi (2.9 km) downstream from former gaging station.

DRAINAGE AREA.--495 mi² (1,282 km²).

PERIOD OF RECORD.--Water years 1974-75, Sept. 20 to Sept. 21, 1977 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./ 100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
20...	0800	2.9	160	7.2	11.7	2	9.5	93	B8300	>3000	63
20...	1100	--	210	7.6	16.2	--	12.3	132	--	--	--
20...	1400	--	155	8.4	15.5	2	10.9	116	B100	B20	--
20...	1700	--	160	8.5	14.6	--	9.8	102	--	--	--
20...	2000	--	170	7.9	13.4	2	8.7	88	3400	B760	--
20...	2300	--	160	7.8	12.5	--	8.6	85	--	--	--
21...	0200	--	137	7.7	11.9	3	8.6	84	B500	B180	--
21...	0500	--	175	7.6	11.2	--	8.8	84	--	--	--
21...	0800	6.3	172	7.9	11.1	--	10.3	99	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
20...	6	16	5.5	8.7	2.8	72	0	59	7.3	5.2
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	83	0	68	.5	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
SEP										
20...	2.3	.1	9.6	86	6	.03	--	--	.06	.01
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	71	.01	.20	.39	.04	.04
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

13346100 PALOUSE RIVER AT COLFAX, WA

LOCATION.--Lat 46°53'50", long 117°21'20", in NW¼NE¼ sec.11, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, on left bank 1,000 ft (305 m) upstream from Sixth Street crossing in Colfax, and 0.8 mi (1.3 km) upstream from South Fork.

DRAINAGE AREA.--497 mi² (1,287 km²).

PERIOD OF RECORD.--September 1955 to June 1973, Oct. 1, 1975 to Sept. 30, 1976. Published as Palouse River "near Colfax" 1955-63, where drainage area was 491 mi² (1,272 km²). Records published for both sites October 1963 to September 1964.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,956.94 ft (596.475 m) above mean sea level (levels by Corps of Engineers). Sept. 19, 1955, to Sept. 30, 1963, at site 3.1 mi (5.0 km) upstream at different datum.

REMARKS.--Records good except those for period of no gage-height record, Apr. 10 to May 23, which are fair. Many small diversions for irrigation above station. Slight regulation by millponds above station.

AVERAGE DISCHARGE.--19 years (water years 1956-72, 1976-77) 306 ft³/s (8.666 m³/s) 221,700 acre-ft/yr (273 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,510 ft³/s (241 m³/s) Dec. 24, 1964, gage height, 11.14 ft (3.395 m); minimum, 0.10 ft³/s (0.003 m³/s) Aug. 25-28, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 2,000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 18	2145	*470	13.3	*4.20	1.280

Minimum discharge, 0.13 ft³/s (0.004 m³/s) Aug. 23, gage height, 0.98 ft (0.299 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	35	17	27	19	67	100	70	78	6.6	6.2	14
2	16	35	16	15	20	76	93	78	73	6.1	5.2	12
3	16	35	16	13	21	79	90	87	68	5.6	4.3	18
4	16	39	17	12	23	70	93	98	70	5.5	3.3	17
5	18	44	20	12	26	63	105	96	63	5.6	2.7	13
6	25	43	25	12	31	59	127	93	66	5.6	1.9	11
7	25	43	31	11	34	55	181	84	63	4.6	1.4	9.4
8	25	41	37	11	39	68	253	75	63	4.2	1.0	9.1
9	25	37	37	12	43	151	311	68	54	4.3	.86	9.0
10	22	37	43	12	50	206	300	73	52	5.0	1.2	8.0
11	19	37	50	13	58	105	250	75	48	5.0	.99	8.2
12	18	37	50	16	75	133	210	86	47	4.2	.59	7.0
13	18	37	41	14	100	116	185	78	47	3.5	.45	5.5
14	18	35	33	15	106	104	180	70	41	3.5	.38	5.0
15	18	35	35	16	97	85	195	65	41	2.7	.38	4.8
16	18	35	39	24	94	78	180	62	39	2.2	.38	4.6
17	18	33	33	37	86	76	170	64	35	1.9	.52	4.6
18	17	32	33	173	79	74	165	70	32	2.0	.74	4.6
19	17	32	17	310	73	72	145	86	28	1.9	.66	4.5
20	17	35	15	173	64	72	130	110	25	2.3	.48	4.6
21	17	43	14	112	70	72	115	97	21	2.5	.38	4.6
22	18	46	15	83	75	74	110	86	19	5.4	.27	6.6
23	18	37	16	78	80	76	105	78	19	10	.20	8.9
24	18	35	18	58	83	78	110	74	19	7.6	.22	9.4
25	25	37	25	43	72	81	125	75	15	6.4	.22	14
26	33	35	35	30	64	86	130	76	12	6.8	.30	16
27	33	16	57	24	57	88	115	68	10	5.6	.62	18
28	32	20	58	21	60	94	105	78	7.1	4.7	.74	24
29	33	35	51	20	---	123	95	80	7.3	4.8	1.9	24
30	37	28	50	20	---	115	76	83	6.9	10	3.1	20
31	35	---	46	19	---	105	---	86	---	7.9	10	---
TOTAL	682	1069	990	1436	1699	2881	4549	2469	1169.3	154.0	51.66	319.4
MEAN	22.0	35.6	31.9	46.3	60.7	92.9	152	79.6	39.0	4.97	1.67	10.6
MAX	37	46	58	310	106	206	311	110	78	10	10	24
MIN	16	16	14	11	19	55	76	62	6.9	1.9	.20	4.5
AC-FT	1350	2120	1960	2840	3370	5710	9020	4900	2320	305	102	634

CAL YR 1976 TOTAL 128803.00 MEAN 352 MAX 3150 MIN 13 AC-FT 255500
WTR YR 1977 TOTAL 17469.36 MEAN 47.9 MAX 311 MIN .20 AC-FT 34650

13348000 SOUTH FORK PALOUSE RIVER AT PULLMAN, WA

LOCATION.--Lat 46°43'57", long 117°10'48", in NE¼NE¼ sec.6, T.14 N., R.45 E., Whitman County, Hydrologic Unit 17060108, on right bank at State Street crossing in Pullman, 600 ft (183 m) upstream from Missouri Flat Creek, and at mile 22.2 (35.7 km).

DRAINAGE AREA.--132 mi² (342 km²).

PERIOD OF RECORD.--February 1934 to September 1942, December 1959 to current year. Chemical analyses October 1973 to September 1974.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 2,326.3 ft (709.06 m) above mean sea level. Prior to Mar. 19, 1934, nonrecording gage at site 30 ft (9 m) upstream.

REMARKS.--Records excellent. Minor diversions for domestic use above station. Slight regulation caused by pondage at Robinson Park Dam on headwaters and by Moscow sewage disposal plant on Paradise Creek.

AVERAGE DISCHARGE.--25 years (water years 1935-42, 1961-77) 39.2 ft³/s (1.110 m³/s), 4.03 in/yr (102 mm/yr), 28,400 acre-ft/yr (35.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,570 ft³/s (129 m³/s) Jan. 21, 1972, gage height, 9.46 ft (2.883 m); minimum, 0.1 ft³/s (0.003 m³/s) Sept. 23, 1942, gage height, 0.50 ft (0.152 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known since 1910, 9.5 ft (2.90 m) Feb. 26, 1948, discharge, 5,000 ft³/s (142 m³/s). Flood of Jan. 24, 1959, reached a stage of 6.5 ft (1.98 m) from floodmarks, discharge, 1,860 ft³/s (52.7 m³/s). Flood of Dec. 22, 1933, reached a stage of 6.0 ft (1.83 m) from gage readings furnished by Washington State University, discharge, 1,800 ft³/s (51.0 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 18	0430	*110	3.12	*2.19	0.668

Minimum discharge, 1.4 ft³/s (0.040 m³/s) July 24, gage height, 0.60 ft (0.183 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.3	13	7.1	6.1	6.6	22	10	6.1	6.9	3.4	2.7	5.1
2	6.5	9.4	7.5	5.2	6.6	17	10	14	7.3	3.4	3.1	4.3
3	8.7	8.0	7.3	4.9	6.4	14	9.4	9.9	5.9	3.0	2.8	5.3
4	5.9	7.7	7.0	4.6	6.8	12	8.9	7.7	6.9	2.8	3.0	4.8
5	5.7	8.0	6.7	4.4	7.3	11	8.7	7.1	5.5	3.0	2.8	3.6
6	5.7	7.7	7.1	4.2	7.9	10	8.7	6.7	5.0	3.4	2.8	3.6
7	5.7	7.3	12	4.2	8.9	12	8.9	6.5	5.0	3.3	2.5	3.7
8	5.2	7.3	13	4.2	9.4	22	8.9	6.3	5.9	3.1	2.6	3.6
9	5.3	7.5	13	4.1	12	34	8.4	6.5	5.0	3.1	2.7	3.7
10	5.2	7.5	9.4	4.2	12	23	8.4	9.7	4.7	2.8	2.7	3.7
11	5.2	7.7	8.7	4.5	14	16	8.0	8.7	4.3	2.8	2.9	3.7
12	5.5	7.5	8.0	5.0	14	13	8.0	7.1	4.2	3.0	2.8	3.7
13	5.2	7.1	7.7	5.3	14	13	12	6.9	4.3	2.4	2.7	4.0
14	5.2	7.3	7.7	6.0	13	13	10	8.2	4.5	2.8	2.6	3.9
15	5.3	7.1	7.3	8.4	11	13	8.9	6.9	4.0	2.7	2.5	3.9
16	5.5	8.0	8.0	13	11	13	9.2	6.1	3.7	2.6	2.7	4.0
17	5.5	9.2	7.7	34	10	13	8.4	6.7	3.7	2.6	2.9	4.2
18	5.3	9.7	7.5	78	10	12	8.0	17	3.4	5.1	2.8	4.2
19	5.9	8.4	6.9	46	9.9	13	8.0	12	3.1	3.5	2.7	5.7
20	5.3	8.0	6.5	19	9.4	13	8.0	9.2	3.1	2.7	2.9	6.3
21	6.1	7.7	6.7	15	11	12	7.7	7.3	3.7	2.6	2.6	7.1
22	5.9	7.5	6.7	13	13	11	7.7	6.3	3.3	2.5	3.1	5.3
23	5.9	7.7	7.1	11	10	12	7.3	7.7	3.4	2.4	2.9	5.2
24	6.1	8.0	6.9	9.7	9.2	12	6.7	8.0	3.4	2.1	4.1	10
25	14	7.7	8.9	8.3	9.7	11	6.7	6.5	3.4	3.5	4.1	9.2
26	17	6.9	19	7.4	11	9.9	6.7	10	3.1	3.3	12	5.3
27	11	6.3	15	7.0	13	13	6.1	11	3.0	3.1	9.7	5.0
28	8.2	6.1	11	6.7	16	12	6.3	8.0	3.4	2.8	6.3	8.2
29	7.5	6.2	9.4	6.6	---	11	6.1	6.5	3.4	2.9	4.4	12
30	7.1	6.7	8.4	6.4	---	9.9	5.9	5.7	3.4	2.9	20	7.5
31	7.1	---	7.5	6.7	---	9.7	---	5.7	---	2.6	11	---
TOTAL	209.0	234.2	272.7	363.1	293.1	432.5	246.0	252.0	129.9	92.2	135.2	159.8
MEAN	6.74	7.81	8.80	11.7	10.5	14.0	8.20	8.13	4.33	2.97	4.36	5.33
MAX	17	13	19	78	16	34	12	17	7.3	5.1	20	12
MIN	5.2	6.1	6.5	4.1	6.4	9.7	5.9	5.7	3.0	2.1	2.5	3.6
CFSM	.05	.06	.07	.09	.08	.11	.06	.06	.03	.02	.03	.04
IN.	.06	.07	.08	.10	.08	.12	.07	.07	.04	.03	.04	.05
AC-FT	415	465	541	720	581	858	488	500	258	183	268	317

CAL YR 1976 TOTAL 22008.8 MEAN 60.1 MAX 951 MIN 4.7 CFSM .46 IN 6.20 AC-FT 43650
WTR YR 1977 TOTAL 2819.7 MEAN 7.73 MAX 78 MIN 2.1 CFSM .06 IN .79 AC-FT 5590

13348500 MISSOURI FLAT CREEK AT PULLMAN, WA

LOCATION.--Lat 46°43'59", long 117°10'47", on line between secs.5 and 6, T.14 N., R.45 E., Whitman County, Hydrologic Unit 17060108, on left bank at State Street crossing in Pullman, 600 ft (183 m) upstream from mouth.

DRAINAGE AREA.--27.1 mi² (70.2 km²).

PERIOD OF RECORD.--February 1934 to September 1940, January 1960 to current year.

REVISED RECORDS.--WSP 1317: Drainage area.

GAGE.--Water-stage recorder and concrete control with a 90° V-notch weir inside a 2-ft (0.61 m) Parshall flume. Datum of gage is 2,328.4 ft (709.70 m) above mean sea level. Prior to Mar. 15, 1934, nonrecording gage at site 20 ft (6.1 m) upstream at same datum.

REMARKS.--Records good. No regulation or diversion. Waste water from swimming pools at Washington State University is discharged into stream above station.

AVERAGE DISCHARGE.--23 years (water years 1935-40, 1961-77), 8.36 ft³/s (0.237 m³/s), 6,060 acre-ft/yr (7.47 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,220 ft³/s (34.6 m³/s) Jan. 21, 1972, gage height, 6.65 ft (2.027 m); no flow for part of Nov. 21, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 26, 1948, reached a stage of 6.3 ft (1.92 m), discharge, 1,500 ft³/s (42.5 m³/s) by slope-area measurement, 0.9 mi (1.4 km) upstream. Flood of Jan. 24, 1959, reached a stage of 4.57 ft (1.393 m), from floodmarks, discharge, 870 ft³/s (24.6 m³/s) by slope-area measurement, 0.25 mi (0.40 km) upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.08 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Aug. 26	1645	*146	4.13	*2.11	0.643

Minimum discharge, 0.04 ft³/s (0.001 m³/s) Jan. 13, 14, gage height, 0.17 ft (0.052 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.31	2.0	.51	.70	.59	2.9	.92	.65	.90	.16	.19	.51
2	.98	1.6	.49	.54	.56	2.2	.88	1.9	.42	.13	.18	.40
3	.42	.64	.49	.25	.56	1.8	.85	.81	.40	.12	.17	.70
4	.38	.61	.49	.09	.56	1.6	.82	.54	.73	.12	.17	.30
5	.37	.61	.49	.05	.61	1.2	.79	.46	.38	.13	.18	.29
6	.37	.56	.51	.05	.66	1.1	.76	.60	.36	.16	.16	.25
7	.36	.56	.90	.05	.73	1.7	.73	.60	.31	.13	.16	.26
8	.38	.58	1.0	.05	.88	5.6	.70	.62	.40	.16	.16	.22
9	.36	.56	1.1	.05	.99	7.6	.66	.60	.26	.13	.16	.21
10	.36	.56	.95	.05	1.1	4.9	.64	.60	.22	.13	.16	.19
11	.36	.59	.88	.05	1.3	1.9	.64	.44	.21	.13	.18	.18
12	.35	.59	.85	.05	1.4	1.6	.61	.32	.23	.16	.17	.18
13	.35	.59	.82	.05	1.5	1.8	1.7	.29	.36	.16	.16	.22
14	.32	.58	.79	.08	1.3	1.5	.65	.36	.22	.17	.13	.22
15	.36	.56	.73	.11	1.2	1.6	.61	.29	.19	.18	.19	.19
16	.38	.67	.73	.12	1.1	1.5	.69	.27	.18	.17	.25	.18
17	.36	.79	.76	.44	1.1	1.9	.59	.30	.17	.18	.17	.21
18	.36	.78	.76	15	1.0	1.7	.56	.70	.17	1.1	.19	.18
19	.44	.64	.67	7.6	.90	1.8	.58	.88	.16	.21	.21	1.1
20	.40	.59	.64	2.2	.95	1.7	.50	.76	.14	.19	.17	.29
21	.42	.56	.59	1.7	1.8	1.6	.58	.67	.16	.19	.16	.92
22	.44	.70	.61	1.3	1.9	1.3	.51	.51	.16	.18	.51	.32
23	.44	.64	.70	1.1	1.5	1.6	.47	.49	.16	.17	.19	.56
24	.54	.73	.76	.85	.95	1.3	.43	.46	.18	.21	2.2	2.6
25	3.1	.73	1.5	.75	.92	1.1	.41	.42	.30	.92	.25	.73
26	1.1	.67	2.9	.65	1.2	1.1	.36	1.5	.29	.21	9.6	.41
27	.73	.59	1.4	.60	1.1	1.1	.37	.55	.27	.18	1.1	.32
28	.56	.51	1.3	.56	2.0	1.0	.36	.61	.25	.21	.54	1.7
29	.54	.60	1.1	.52	---	1.0	.36	.44	.44	.18	.51	.64
30	.54	.51	.95	.53	---	.95	.38	.43	.36	.18	8.8	.85
31	.70	---	.82	.56	---	.92	---	.38	---	.16	.92	---
TOTAL	17.08	21.67	27.67	36.68	30.41	59.57	18.91	17.25	9.10	6.71	28.01	15.30
MEAN	.55	.72	.89	1.18	1.09	1.92	.63	.56	.30	.22	.90	.51
MAX	3.1	2.0	2.9	15	2.0	7.6	1.7	1.9	.90	1.1	9.6	2.6
MIN	.31	.49	.49	.05	.56	.92	.36	.27	.14	.12	.13	.18
AC-FT	34	43	55	73	60	118	38	34	18	13	56	31

CAL YR 1976 TOTAL 4011.07 MEAN 11.0 MAX 253 MIN .29 AC-FT 7960
WTR YR 1977 TOTAL 288.26 MEAN .79 MAX 15 MIN .05 AC-FT 572

13349200 SOUTH FORK PALOUSE RIVER NEAR COLFAX, WA

LOCATION.--Lat 46°52'52", long 117°20'42", in NW¼SW¼ sec.15, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, 0.6 mi (1.0 km) east of Colfax city limits and 1.1 mi (1.8 km) upstream from Spring Flat Creek.

DRAINAGE AREA.--277 mi² (717 km²).

PERIOD OF RECORD.--Water years 1974-75, Sept. 20 to Sept. 21, 1977 (discontinued).

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, specific conductance and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM, .7UM-MF (COLS./100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
20...	0000	5.1	650	8.1	17.2	16	9.1	99	2000	220	150
20...	1100	--	650	7.6	14.3	--	10.5	109	--	--	--
20...	1400	--	650	7.6	19.4	20	9.5	101	3600	120	--
20...	1700	--	650	7.7	14.7	--	8.8	92	--	--	--
20...	2000	--	610	7.6	14.0	25	8.8	90	B2400	500	--
20...	2300	--	590	7.6	13.2	--	8.1	83	--	--	--
21...	0200	--	600	7.6	12.8	16	8.4	86	B250	500	--
21...	0500	--	670	7.7	12.5	--	8.5	84	--	--	--
21...	0800	7.0	660	7.7	12.2	--	9.2	90	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
20...	2	36	15	60	12	176	0	144	2.2	29
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	167	0	137	4.2	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO-PHOSPHORUS (P) (MG/L)
SEP										
20...	46	.9	66	336	20	11	1.9	2.9	4.0	4.0
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	6	12	1.2	2.2	4.3	3.9
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

13349210 PALOUSE RIVER BELOW SOUTH FORK, AT COLFAX, WA

LOCATION.--Lat 46°53'23", long 117°22'09", in NW¼SW¼ sec.11, T.16 N., R.43 E., Whitman County, Hydrologic Unit 17060108, on left bank at Colfax, 750 ft (229 m) downstream from South Fork, 0.3 mi (0.5 km) upstream from bridge on U.S. Highway 295, and at mile 89.5 (144.0 km).

DRAINAGE AREA.--796 mi² (2,062 km²).

PERIOD OF RECORD.--October 1963 to June 1973, October 1975 to current year.

REVISED RECORDS.--WSP 2134: 1967, 1968.

GAGE.--Water-stage recorder. Datum of gage is 1,932.22 ft (588.941 m) above mean sea level (levels by Corps of Engineers).

REMARKS.--Records good. Small diversions for irrigation above station. Slight regulation by millpond and city of Moscow, Idaho, sewage disposal plant.

AVERAGE DISCHARGE.--11 years (water years 1964-72, 1976-77) 395 ft³/s (11.19 m³/s), 286,200 acre-ft/yr (353 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,700 ft³/s (416 m³/s) Jan. 21, 1972, gage height, 17.98 ft (5.480 m); minimum, 1.7 ft³/s (0.048 m³/s) Aug. 3, 23, 1966; minimum gage height, 0.88 ft (0.268 m) Aug. 3, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 3, 1963, reached a stage of 16.49 ft (5.026 m) discharge, 14,500 ft³/s (411 m³/s), by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 18	2215	*735	20.8	*4.47	1.362

Minimum discharge, 2.3 ft³/s (0.065 m³/s) July 15, gage height, 1.33 ft (0.405 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	53	63	64	48	126	100	73	89	13	10	32
2	26	57	60	56	48	140	96	81	88	12	8.4	28
3	28	55	38	48	48	154	90	88	80	9.9	8.4	28
4	30	58	36	44	49	136	94	101	80	8.0	7.6	29
5	30	64	37	40	49	115	101	101	67	11	6.0	26
6	36	55	38	40	50	100	145	95	61	9.5	5.7	24
7	36	50	46	39	52	105	209	80	57	8.7	5.2	21
8	34	50	71	39	60	130	275	76	51	8.0	4.3	22
9	32	48	82	40	75	257	323	70	43	6.3	3.6	23
10	31	47	87	42	88	353	320	75	39	6.6	4.0	19
11	29	47	102	46	106	293	257	77	38	6.0	4.3	20
12	31	47	95	50	145	214	209	77	32	5.5	4.0	18
13	32	46	78	56	173	198	189	69	32	4.8	4.3	16
14	31	42	71	61	189	154	191	75	30	5.1	3.8	15
15	30	42	76	66	173	106	207	68	28	5.2	3.6	14
16	27	42	70	76	156	96	189	64	25	5.2	3.2	15
17	26	42	61	190	140	88	177	67	22	4.7	3.6	14
18	26	47	60	492	126	80	175	80	21	5.7	4.0	13
19	47	53	67	644	110	76	156	98	20	7.6	3.8	15
20	27	57	65	377	117	74	133	124	18	8.7	3.6	16
21	27	61	66	230	122	74	120	115	16	7.0	3.4	17
22	28	58	65	184	138	76	112	108	16	8.7	4.0	19
23	29	50	67	168	149	78	108	102	18	15	4.0	23
24	29	53	52	128	152	83	112	95	16	12	6.3	25
25	36	54	54	96	126	104	131	89	19	9.9	11	30
26	61	52	79	80	115	106	136	98	16	12	12	37
27	57	34	95	70	105	106	117	77	14	10	32	32
28	91	33	96	60	115	117	108	84	11	8.9	13	45
29	71	43	86	55	---	145	98	89	12	9.1	9.9	46
30	57	52	82	50	---	131	88	89	13	14	15	45
31	46	---	70	50	---	110	---	101	---	13	69	---
TOTAL	1126	1492	1981	3677	3026	4142	4754	2704	1072	270.3	261.0	735
MEAN	36.3	49.7	63.9	119	108	134	158	87.2	35.7	8.72	8.42	24.5
MAX	91	64	102	644	189	353	323	124	89	15	69	46
MIN	26	33	36	39	48	74	88	64	11	4.8	3.2	13
AC-FT	2230	2960	3930	7290	6000	8220	9430	5360	2130	536	518	1460

CAL YR 1976 TOTAL 179914.0 MEAN 492 MAX 5140 MIN 15 AC-FT 356900
WTR YR 1977 TOTAL 25230.3 MEAN 69.1 MAX 644 MIN 3.2 AC-FT 50040

13351000 PALOUSE RIVER AT HOOPER, WA

LOCATION.--Lat 46°45'31", long 118°08'52", in NE¼SE¼ sec.27, T.15 N., R.37 E., Whitman County, Hydrologic Unit 17060108, on left bank 150 ft (46 m) downstream from bridge on State Highway 26 at Hooper, 0.3 mi (0.5 km) upstream from Cow Creek, 3.5 mi (5.6 km) downstream from right bank tributary, 6.0 mi (9.7 km) downstream from Willow Creek, and at mile 19.6 (31.5 km).

DRAINAGE AREA.--2,500 mi^2 (6,475 km^3).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April to August 1897 (gage heights only), September 1897 to December 1899, April 1900 to April 1907, June 1908 to July 1912, March 1913 to March 1916, February 1951 to current year. Prior to 1904 sometimes published as "near Hooper."

REVISED RECORDS.--WSP 1287: 1897-1904, 1910(M), 1915-16(M). WSP 1447: 1910. WSP 1934: Drainage area. WSP 1447: 1906(M). WSP 1567: 1908-9(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,040 ft (317 m), from topographic map. Apr. 1 to Aug. 31, 1897, nonrecording gage at site 2.5 mi (4.0 km) upstream at different datum. Sept. 9, 1897, to March 1916, various nonrecording gages at site 1.5 mi (2.4 km) upstream from present site at different datums. Feb. 8 to Mar. 28, 1951, nonrecording gage at present site and datum.

REMARKS.--Records good. Diversions above station for irrigation and municipal use.

AVERAGE DISCHARGE.--39 years (water years 1898-99, 1901-06, 1909-11, 1914-15, 1952-77), 619 ft^3/s (17.53 m^3/s), 448,500 acre-ft/yr (553 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,500 ft^3/s (949 m^3/s) Feb. 4, 1963, gage height, 19.13 ft (5.831 m) from rating curve extended above 18,000 ft^3/s (510 m^3/s) on basis of slope-area measurement of peak flow; no flow part or all of each day June 25, 1910, Aug. 1-17, Aug. 28 to Sept. 4, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,700 ft^3/s (105 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	(m^3/s)	Gage height (ft)	(m)
Jan. 20	1800	*675	19.1	*5.91	1.801

Minimum discharge, 1.6 ft^3/s (0.045 m^3/s) Aug. 16, gage height, 2.54 ft (0.774 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	118	90	100	129	186	202	119	124	11	5.3	20
2	66	116	92	86	130	194	188	110	126	9.0	5.8	19
3	66	114	95	83	135	209	192	108	118	8.0	6.0	22
4	68	116	100	80	137	209	190	114	118	7.2	5.9	38
5	71	116	105	75	137	200	186	114	116	7.3	4.7	38
6	71	116	110	80	140	188	180	122	113	9.1	4.6	36
7	73	121	116	70	140	180	176	124	104	8.6	5.0	34
8	73	116	122	76	140	182	222	118	94	7.1	4.9	31
9	79	111	132	76	143	178	285	104	92	6.8	4.5	29
10	79	110	139	76	146	257	348	98	93	7.0	3.8	29
11	78	111	139	80	159	378	357	96	86	5.8	3.3	28
12	77	110	141	90	163	333	306	99	80	6.2	3.4	25
13	77	110	143	100	174	279	260	102	77	5.6	3.0	26
14	77	110	141	105	202	249	232	94	71	5.3	2.0	24
15	77	111	131	108	209	232	225	104	66	5.5	1.8	24
16	77	111	127	111	211	220	237	96	59	4.7	1.7	25
17	78	111	134	119	198	213	222	92	55	4.3	1.8	25
18	80	111	131	157	196	211	205	98	50	5.0	1.8	25
19	82	113	110	252	184	207	196	102	46	5.4	1.8	25
20	82	113	95	573	180	202	192	108	43	5.5	2.0	25
21	82	116	100	437	180	194	180	119	38	5.5	2.5	25
22	86	119	105	276	180	196	167	139	33	4.9	3.3	28
23	89	122	110	220	186	196	155	134	32	5.9	2.8	31
24	92	121	105	198	192	194	148	131	27	5.8	2.1	35
25	94	118	110	188	194	190	141	121	22	5.7	2.5	39
26	98	110	125	150	192	186	139	113	19	6.8	2.7	45
27	106	100	145	135	182	198	145	114	21	7.2	2.5	50
28	118	90	157	130	186	198	146	118	20	5.1	2.2	54
29	116	88	155	127	---	205	138	116	15	6.1	4.6	57
30	126	90	141	125	---	218	127	126	12	6.6	11	56
31	124	---	125	127	---	216	---	126	---	5.7	17	---
TOTAL	2630	3339	3771	4610	4745	6698	6087	3479	1970	199.7	126.3	968
MEAN	84.8	111	122	149	169	216	203	112	65.7	6.44	4.07	32.3
MAX	126	122	157	573	211	378	357	139	126	11	17	57
MIN	66	88	90	70	129	178	127	92	12	4.3	1.7	19
AC-FT	5220	6620	7480	9140	9410	13290	12070	6900	3910	396	251	1920

CAL YR 1976 TOTAL 265640.0 MEAN 726 MAX 6020 MIN 51 AC-FT 526900
WTR YR 1977 TOTAL 38623.0 MEAN 106 MAX 573 MIN 1.7 AC-FT 76610

13351000 PALOUSE RIVER AT HOOPER, WA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years, 1959-71, 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1961 to September 1971.
SUSPENDED SEDIMENT: October 1961 to September 1971.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color, specific conductance, and coliform data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)
OCT 06...	1330	65	340	20.1	30	65	8.7
NOV 16...	1130	111	340	7.4	20	90	8.0
DEC 14...	1045	141	325	.8	20	25	14.7
JAN 25...	1015	190	167	1.0	19	15	14.0
FEB 15...	1145	207	220	7.6	15	20	14.1
MAR 22...	1005	202	185	8.4	8	15	7.3
APR 19...	1000	198	219	10.0	8	10	10.1
MAY 17...	1000	92	275	12.4	22	15	7.7
JUN 21...	1015	36	295	20.3	19	4	--
JUL 26...	1040	6.9	280	24.0	24	7	6.8
AUG 23...	0925	3.0	290	21.3	--	20	9.6
SEP 20...	0815	26	420	14.5	--	15	9.2
27...	1000	48	310	12.4	--	10	10.0

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
OCT 06...	.49	.01	.16	1.0	.25	.12
NOV 16...	1.4	.02	.34	.86	.40	.26
DEC 14...	2.5	.02	.16	.44	.51	.39
JAN 25...	2.3	.10	1.2	2.4	.55	.26
FEB 15...	2.6	.03	.17	.47	.49	.41
MAR 22...	2.0	.02	.12	.42	.28	.20
APR 19...	.90	.01	.16	.58	.30	.18
MAY 17...	.60	.03	.16	.78	.34	.16
JUN 21...	.06	.01	.26	1.3	.43	.16
JUL 26...	.33	.02	.30	.86	.36	.15
AUG 23...	.39	.02	.35	1.1	.44	.19
SEP 20...	--	--	.23	.98	.28	.18
27...	.67	.02	.14	.83	.20	.04

13351000 PALOUSE RIVER AT HOOPER, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
20...	0815	26	420	8.6	14.5	16	9.2	93	B400	863	150
20...	1105	26	380	8.6	15.4	--	10.5	108	--	--	--
20...	1405	26	400	8.3	17.0	15	11.6	124	B330	110	--
20...	1655	26	410	8.2	16.8	--	11.6	123	--	--	--
20...	1950	26	430	8.3	15.7	10	10.7	111	--	--	--
20...	2300	26	435	8.2	14.8	--	9.8	99	--	--	--
21...	0510	26	450	8.5	14.1	17	9.0	90	--	--	--
21...	0745	26	450	8.5	13.9	--	8.9	88	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
20...	0	36	15	31	5.1	220	1	180	.9	19
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
SEP										
20...	21	.4	23	260	33	.39	.23	.98	.28	.18
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	32	.38	.24	1.1	.25	.14
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

13351800 SPRAGUE LAKE NEAR SPRAGUE, WA

LOCATION.--Lat 47°16'47", long 118°01'26", in NE¼SE¼ sec.28, T.21 N., R.38 E., Lincoln County, Hydrologic Unit 17060108, on southeast shore 3.1 mi (5.0 km) southwest of Sprague.

DRAINAGE AREA.--289 mi² (749 km²).

PERIOD OF RECORD.--September 1958 to current year. Prior to October 1960, published as Colville Lake near Sprague. Chemical analyses April 1975 to September 1975.

REVISED RECORDS.--WSP 1934: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Prior to Jan. 1, 1975, nonrecording gages at several sites, all at present datum except period Sept. 11, 1958 to Sept. 30, 1959, which was at datum 1,865.53 ft (568.614 m) higher.

REMARKS.--Some regulation by small dam at outlet. No known diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 1,881.93 ft (573.612 m) from high-water mark, occurred during the period Jan. 13-29, 1974; minimum observed, 1,875.14 ft (571.543 m) Nov. 2, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Lake reached an elevation at 1,881.75 ft (573.557 m) in March 1956 (from high-water mark).

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 1,878.12 ft (572.451 m) Mar. 26, Apr. 8; minimum, 1,876.16 ft (571.854 m) part or all of each day Sept. 21-30.

ELEVATION, IN FEET ABOVE MEAN SEA LEVEL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1877.81	1877.46	1877.28	1877.36	1877.57	1877.83	1877.96	1877.85	1877.65	1877.24	1876.64	1876.22
2	1877.84	1877.42	1877.28	1877.36	1877.58	1877.84	1877.98	1877.87	1877.64	1877.21	1876.63	1876.21
3	1877.80	1877.42	1877.28	1877.37	1877.58	1877.85	1877.97	1877.86	1877.63	1877.16	1876.61	1876.21
4	1877.79	1877.42	1877.28	1877.37	1877.59	1877.86	1877.97	1877.86	1877.65	1877.13	1876.56	1876.21
5	1877.78	1877.42	1877.28	1877.37	1877.60	1877.86	1877.97	1877.83	1877.63	1877.11	1876.54	1876.21
6	1877.76	1877.40	1877.27	1877.38	1877.61	1877.87	1877.98	1877.80	1877.63	1877.09	1876.54	1876.21
7	1877.76	1877.40	1877.28	1877.38	1877.61	1877.88	1877.98	1877.81	1877.64	1877.07	1876.52	1876.21
8	1877.76	1877.39	1877.29	1877.38	1877.63	1877.91	1878.01	1877.81	1877.65	1877.05	1876.51	1876.20
9	1877.76	1877.38	1877.28	1877.39	1877.63	1877.92	1877.99	1877.81	1877.60	1877.05	1876.48	1876.19
10	1877.76	1877.38	1877.28	1877.39	1877.65	1877.88	1877.98	1877.83	1877.58	1877.02	1876.44	1876.19
11	1877.76	1877.37	1877.28	1877.39	1877.66	1877.86	1877.98	1877.82	1877.57	1877.01	1876.43	1876.19
12	1877.75	1877.36	1877.28	1877.39	1877.67	1877.89	1877.97	1877.80	1877.57	1877.00	1876.42	1876.18
13	1877.75	1877.36	1877.28	1877.40	1877.68	1877.90	1878.01	1877.80	1877.56	1876.97	1876.41	1876.18
14	1877.75	1877.36	1877.27	1877.41	1877.68	1877.90	1877.97	1877.79	1877.56	1876.94	1876.38	1876.18
15	1877.72	1877.35	1877.27	1877.43	1877.69	1877.90	1877.96	1877.77	1877.56	1876.94	1876.35	1876.18
16	1877.69	1877.35	1877.27	1877.45	1877.70	1877.91	1877.98	1877.75	1877.54	1876.93	1876.34	1876.17
17	1877.65	1877.37	1877.27	1877.46	1877.71	1877.93	1877.94	1877.75	1877.51	1876.91	1876.33	1876.17
18	1877.62	1877.35	1877.27	1877.48	1877.72	1877.92	1877.95	1877.75	1877.50	1876.89	1876.32	1876.17
19	1877.60	1877.34	1877.27	1877.49	1877.72	1877.93	1877.93	1877.75	1877.49	1876.86	1876.30	1876.17
20	1877.58	1877.32	1877.26	1877.49	1877.73	1877.93	1877.91	1877.74	1877.49	1876.83	1876.29	1876.17
21	1877.57	1877.33	1877.27	1877.51	1877.75	1877.95	1877.92	1877.74	1877.46	1876.83	1876.27	1876.16
22	1877.55	1877.32	1877.27	1877.51	1877.79	1877.93	1877.89	1877.71	1877.45	1876.82	1876.26	1876.16
23	1877.53	1877.32	1877.29	1877.52	1877.78	1877.96	1877.90	1877.72	1877.42	1876.80	1876.24	1876.16
24	1877.52	1877.32	1877.30	1877.52	1877.78	1877.97	1877.89	1877.71	1877.41	1876.76	1876.26	1876.16
25	1877.52	1877.33	1877.31	1877.54	1877.81	1877.97	1877.90	1877.69	1877.39	1876.77	1876.23	1876.16
26	1877.51	1877.29	1877.32	1877.54	1877.80	1878.01	1877.91	1877.71	1877.38	1876.76	1876.25	1876.16
27	1877.49	1877.30	1877.33	1877.55	1877.80	1878.01	1877.88	1877.69	1877.33	1876.75	1876.25	1876.16
28	1877.48	1877.29	1877.34	1877.55	1877.82	1877.96	1877.87	1877.67	1877.32	1876.76	1876.25	1876.16
29	1877.47	1877.29	1877.35	1877.56	---	1877.96	1877.87	1877.66	1877.28	1876.70	1876.24	1876.16
30	1877.45	1877.28	1877.35	1877.56	---	1877.97	1877.86	1877.64	1877.25	1876.67	1876.23	1876.16
31	1877.46	---	1877.36	1877.57	---	1877.98	---	1877.64	---	1876.66	1876.22	---
MEAN	1877.65	1877.36	1877.29	1877.45	1877.69	1877.92	1877.94	1877.76	1877.51	1876.93	1876.38	1876.18
MAX	1877.84	1877.46	1877.36	1877.57	1877.82	1878.01	1878.01	1877.87	1877.65	1877.24	1876.64	1876.22
MIN	1877.45	1877.28	1877.26	1877.36	1877.57	1877.83	1877.86	1877.64	1877.25	1876.66	1876.22	1876.16

CAL YR 1976 MEAN 1878.41 MAX 1879.60 MIN 1877.26
WTR YR 1977 MEAN 1877.34 MAX 1878.01 MIN 1876.16

13353000 SNAKE RIVER BELOW ICE HARBOR DAM, WA

LOCATION.--Lat 46°14'53", long 118°52'43", in NE¼SW¼, sec.24, T.9 N., R.31 E., Walla Walla County, Hydrologic Unit 17060110, in powerhouse forebay pier P-1 on south side of Bay 1 at Ice Harbor Dam, 8.0 mi (12.9 km) northeast of Burbank, and at mile 9.7 (15.6 km).

DRAINAGE AREA.--108,500 mi^2 (281,000 km^2), approximately.

PERIOD OF RECORD.--October 1907 to March 1917 (gage heights only October 1907 to August 1909), March 1962 to current year. Published as "at Burbank" prior to 1911 and as "near Burbank" 1912-17. Chemical analyses October 1965 to September 1969, October 1971 to September 1972. For records collected at site 7.5 mi (12.1 km) downstream see station 13353200.

REVISED RECORDS.--WSP 1317: Drainage area.

GAGE.--Watt-hour meters on each turbine in Ice Harbor Dam powerhouse. Elevations are at mean sea level datum. Oct. 2, 1907, to Mar. 31, 1917, nonrecording gage at site approximately 2 mi (3.2 km) downstream at datum 300 ft (91 m) higher. Mar. 23, 1962, to Sept. 30, 1968, water-stage recorder 1.0 mi (1.6 km) downstream at mean sea level datum.

REMARKS.--Records computed from power output, flow over spillway, flow through fish ladder, and lockage records at Ice Harbor Dam. Diversions above station for irrigation of over 4,090,000 acres (16,600 km^2). Flow regulated by Lake Sacajawea and many storage reservoirs and powerplants upstream.

COOPERATION.--Records furnished by Corps of Engineers. Records not reviewed but three discharge measurements made by the Geological Survey to verify turbine and spillway ratings.

AVERAGE DISCHARGE.--22 years (water years 1910-16, 1963-77) 56,450 ft^3/s (1,599 m^3/s), 40,900,000 acre-ft/yr (50,400 hm^3/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 312,000 ft^3/s (8,840 m^3/s) June 19, 1974; no flow momentarily Aug. 27, 1965 (result of testing at Ice Harbor Dam).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 30, 1948, reached an elevation of 361.9 ft (110.31 m) at a site 0.7 mi (1.1 km) downstream from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 95,300 ft^3/s (2,700 m^3/s) May 3; maximum forebay elevation, 440.04 ft (134.12 m) Jan. 31; minimum discharge, 100 ft^3/s (2.83 m^3/s) part of each day Feb. 16, 19, 20, 23, 26, 27, Mar. 4-6, 8-20, 22-24; minimum forebay elevation, 436.71 ft (133.11 m) June 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35900	28600	35000	10900	26200	20800	22200	52300	41200	29900	21100	14100
2	25000	31100	38500	22600	37400	34800	15100	54200	42400	22100	21500	18300
3	24100	23100	38900	39600	38700	24000	9300	47400	58000	23500	27500	17400
4	35200	27600	35100	34400	31900	38300	27700	60200	37100	19900	11800	8500
5	36800	29400	32300	42800	11200	16400	23700	55300	39600	24800	7300	14100
6	32600	32500	32300	39800	20600	12900	18600	44500	48700	17700	6400	34400
7	30300	30900	30400	38000	34900	39700	26800	23200	57200	24700	8400	8900
8	26500	34300	43100	28500	29900	16800	23200	11700	61900	20700	19900	13700
9	13900	26500	32100	11100	33000	28100	21000	47100	57300	3900	16300	11800
10	30600	26800	41100	34500	25700	19300	37500	39600	43400	6800	7900	7700
11	34300	31200	30500	28500	24400	29400	39500	33900	45500	48300	11700	6300
12	32100	27000	34300	30200	11600	26100	34300	38500	25900	20800	9000	12100
13	37600	23900	37600	25900	15400	18300	29900	38500	41700	22500	7200	14600
14	32900	24300	35400	32200	30200	29000	40600	19800	48600	26900	6400	17100
15	32900	31600	42700	25600	23700	29200	30100	41400	43600	20900	15600	17500
16	30700	28200	33500	24200	18000	25900	20700	43600	50200	8000	14900	27500
17	17400	25900	31000	33800	20800	16600	15100	36200	27000	7900	18700	8000
18	43600	30700	8500	27100	21000	18100	38900	24900	21900	21500	20800	6500
19	31200	29900	8400	39600	26100	25400	34900	34800	15300	24100	21700	15800
20	36700	26100	38400	32200	21200	13200	24500	22700	35500	18900	6400	6300
21	35300	32500	37200	34500	21000	36200	25200	35500	28600	19800	6900	12200
22	29900	32000	33900	20700	29500	22900	18100	31000	23800	16900	27100	14300
23	16400	31100	27800	20000	20100	24700	13600	43800	39300	9400	21700	20000
24	10800	33200	27000	32400	17500	20100	22200	41000	36600	10700	13400	11800
25	19400	33200	23100	38300	33900	18800	42300	49900	23600	21900	17100	13900
26	25500	34600	20800	36500	13000	7100	50000	52300	13300	20100	14700	26500
27	27400	35000	31200	32700	15200	8200	53100	51000	34900	15300	11200	28400
28	34900	35000	36100	32400	29900	31000	44500	33900	30800	10700	6800	25400
29	34300	34900	36800	32100	---	26400	47700	39700	30500	19100	18900	25600
30	24600	32500	30900	18400	---	28400	49700	32100	29400	10000	7800	22300
31	14300	---	30500	27600	---	29300	---	54500	---	3300	12200	---
TOTAL	893100	903600	995200	927100	682000	735400	900200	1234500	1132800	571000	435500	481000
MEAN	28810	30120	32100	29910	24360	23720	30010	39820	37760	18420	14050	16030
MAX	43600	35000	43100	42800	38700	39700	53100	60200	61900	48300	27500	34400
MIN	10800	23100	8400	10900	11200	7100	9300	11700	13300	3300	6400	6300
AC-FT	1771000	1792000	1974000	1839000	1353000	1459000	1786000	2449000	2247000	1133000	863800	954100

CAL YR 1976 TOTAL 23319700 MEAN 63720 MAX 191000 MIN 8100 AC-FT 46250000
WTR YR 1977 TOTAL 9891400 MEAN 27100 MAX 61900 MIN 3300 AC-FT 19620000

13353200 SNAKE RIVER AT BURBANK, WA
(National stream-quality accounting network station)

LOCATION.--Lat 46°12'59", long 119°01'22", in NE¼SW¼ sec.35, T.9 N., R.30 E., Franklin County, Hydrologic Unit 17060110, at U.S. Highway 395/410 bridge at Burbank, 2.2 mi (3.5 km) upstream from mouth and 7.5 mi (12.1 km) downstream from Ice Harbor Dam.

DRAINAGE AREA.--108,800 mi² (281,800 km²).

PERIOD OF RECORD.--Water years 1960-69, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1973 to current year.
WATER TEMPERATURES; April 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since March 1973.

REMARKS.--July 1960 to August 1962, at site 0.7 mi downstream and August 1962 to September 1963, at present site, published as "near Pasco"; and October 1963 to September 1965, at present site and published as 13353000 "below Ice Harbor Dam". For records collected at site 7.5 mi (12.1 km) upstream see station 13353000. Flow data routed from station 13353000. Interruptions in the record were due to malfunctions of the instrument.

COOPERATION.--Water-discharge values furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 385 micromhos Jan. 14, 1975; minimum, 72 micromhos June 20, 1974.
WATER TEMPERATURES; Maximum, 24.0°C Aug. 3, 7, 8, 1973, Aug. 4, 1974; minimum recorded, 1.5°C Feb. 8-12, 1975.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 371 micromhos Apr. 21; minimum recorded, 112 micromhos June 12-14.
WATER TEMPERATURES: Maximum, 23.5°C Aug. 14, 21; minimum, 2.5°C Jan. 13-19, Jan. 26 to Feb. 10.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)
OCT										
26...	1150	49600	278	7.6	14.8	4	6	5	--	20
NOV										
18...	1100	29700	333	7.9	11.2	2	7	--	1	--
DEC										
15...	1130	50100	285	7.8	6.1	2	6	--	1	--
JAN										
19...	1200	51000	350	8.1	2.7	2	3	--	<1	--
FEB										
23...	1100	24300	352	7.9	3.8	2	7	--	--	--
MAR										
16...	1145	47700	330	7.8	4.9	2	13	--	1	--
APR										
14...	1145	45500	320	8.1	8.5	3	84	--	3	--
MAY										
03...	0950	38000	254	7.8	11.7	2	3	--	2	--
JUN										
07...	1235	63200	123	8.0	15.1	5	100	--	<1	--
JUL										
06...	1130	16900	131	7.8	19.6	5	42	--	1	--
AUG										
04...	1100	22200	212	7.7	21.7	1	15	--	15	--
SEP										
13...	1040	16100	230	8.0	20.8	1	12	--	4	--

DATE	FECAL STREPTOCOCCI KF AGAR (COL. PER 100 ML)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)
OCT									
26...	--	91	1	24	7.6	20	2.9	110	90
NOV									
18...	10	120	0	29	11	26	3.5	149	122
DEC									
15...	7	110	12	26	11	22	2.8	120	98
JAN									
19...	120	130	10	32	12	26	3.3	145	119
FEB									
23...	3	120	5	30	12	22	3.1	146	120
MAR									
16...	57	120	7	29	11	21	2.8	135	111
APR									
14...	4	120	5	30	11	22	2.8	140	110
MAY									
03...	4	97	7	25	8.4	17	2.6	110	90
JUN									
07...	5	49	2	13	4.0	9.4	1.5	57	47
JUL									
06...	2	48	2	13	3.7	8.3	1.4	56	46
AUG									
04...	20	81	7	22	6.4	15	2.1	90	74
SEP									
13...	7	80	0	20	7.4	19	2.6	100	82

13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)
OCT									
26...	4.4	29	12	.4	17	153	167	<1	.43
NOV									
18...	3.0	29	14	.4	17	209	203	2	.60
DEC									
15...	3.0	33	13	.4	16	178	183	28	.48
JAN									
19...	1.8	38	16	.4	21	224	220	0	.67
FEB									
23...	2.9	35	15	.5	21	211	211	0	.67
MAR									
16...	3.4	34	19	.4	18	208	202	0	.97
APR									
14...	1.8	32	15	.5	19	196	201	6	.52
MAY									
03...	2.8	24	12	.4	18	164	162	6	.37
JUN									
07...	.9	12	8.0	.2	13	87	89	4	.14
JUL									
06...	1.4	12	5.1	.2	10	85	81	10	.08
AUG									
04...	2.9	20	8.9	.3	10	121	129	<1	.09
SEP									
13...	1.6	24	10	.4	13	135	146	9	.09

DATE	TOTAL NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT									
26...	.00	.43	.03	.32	.06	.04	8	1070	--
NOV									
18...	.01	.61	.04	.30	.06	.05	--	--	--
DEC									
15...	.01	.49	.04	.22	.04	.02	4	541	--
JAN									
19...	.00	.67	.02	.19	.08	.03	3	413	--
FEB									
23...	.01	.68	.04	.24	.04	.02	3	237	--
MAR									
16...	.01	.98	.05	.28	.17	.02	2	258	95
APR									
14...	.01	.53	.04	.36	.04	.01	6	737	97
MAY									
03...	.01	.38	.07	.22	.04	.02	9	923	97
JUN									
07...	.00	.14	.10	.38	.03	.01	5	853	95
JUL									
06...	.01	.09	.07	.25	.04	.01	--	--	96
AUG									
04...	.01	.10	.06	.17	.02	.01	4	240	97
SEP									
13...	.01	.10	.04	.24	.03	.02	7	304	95

13353200 SNAKE RIVER AT BURBANK, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CU) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT												
26...	1150	3	3	<10	1	0	0	<50	0	<10	1	230
JAN												
19...	1200	5	4	<10	2	0	0	<50	0	10	6	170
APR												
14...	1145	0	2	10	1	10	10	<50	2	<10	0	320
JUL												
06...	1130	2	2	10	16	0	0	<50	0	10	3	200

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT												
26...	50	<100	0	30	0	.0	.0	1	1	10	0	2.5
JAN												
19...	50	<100	12	20	10	.1	.1	1	0	30	20	1.6
APR												
14...	40	<100	3	20	0	.0	.0	0	0	10	10	1.9
JUL												
06...	10	<100	86	20	0	.0	.0	1	0	30	0	2.3

RADIOCHEMICAL ANALYSES, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	TOTAL FILT-RABLE RESIDUE (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)	SUS-PENDED GROSS BETA AS CS-137 (PC/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS-PENDED GROSS BETA AS SR90 /Y90 (PC/L)	DIS-SOLVED RA-226 (RADON METHOD) (PC/L)	DIS-SOLVED NATURAL URANIUM (U) (UG/L)
OCT											
26...	1150	170	<1	<2.4	<.4	3.8	.7	3.0	.7	.08	2.1
MAY											
03...	0950	170	6	3.7	<.4	3.8	.5	3.1	.5	.08	1.9
AUG											
04...	1100	130	<1	4.0	<.4	3.5	.4	2.8	<.4	.04	1.2

SNAKE RIVER BASIN

13353200 SNAKE RIVER AT BURBANK, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE	OCT 26,76	NOV 18,76	DEC 15,76	FEB 23,77	MAY 3,77
TIME	1150	1100	1130	1100	0950
TOTAL CELLS/ML	850	280	880	1100	3200
DIVERSITY: DIVISION	1.4	1.0	0.4	0.5	0.2
.CLASS	1.4	1.0	0.5	0.5	0.2
..ORDER	1.8	1.4	0.9	1.3	1.1
...FAMILY	2.2	2.1	1.2	1.7	1.8
....GENUS	2.8	2.8	1.6	2.0	2.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	12	4	21	2	--	-	--	-
...MICRACTINIACEAE										
....MICRACTINIUM	8	1	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	76	9	25	9	21	2	17	1	81	3
....CHODATELLA	--	-	--	-	--	-	9	1	--	-
....CLOSTERIOPSIS	--	-	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	10	4	*	0	--	-	--	-
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-
....QUADRIGULA	--	-	--	-	--	-	--	-	--	-
....SELENASTRUM	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	15	2	15	5	12	1	--	-	--	-
....TETRASTRUM	92	11	40	14	--	-	--	-	--	-
..TETRASPORALES										
...PALMELLACEAE										
....GLOEOCYSTIS	--	-	--	-	--	-	--	-	--	-
..ULOTRICHALES										
...ULOTHRICHACEAE										
....HORMIDIUM	--	-	10	4	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	8	1	--	-	9	1	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....STAURASTRUM	*	0	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	190#	23	32	12	57	6	710#	62	380	12
....MELOSIRA	260#	31	120#	42	680#	77	60	5	1700#	51
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	2	1	--	-	--	-	35	1
....COCCONEIS	*	0	--	-	9	1	--	-	--	-
....RHOICOSPHENIA	--	-	--	-	--	-	--	-	--	-
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	--	-	--	-
....CYMBELLA	--	-	--	-	9	1	9	1	35	1
....EPITHEMIA	--	-	2	1	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	77	7	69	2
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	--	-	6	1	160	13	590#	18
....FRAGILARIA	--	-	5	2	*	0	--	-	*	0
....HANNAEA	--	-	--	-	*	0	--	-	--	-
....SYNEDRA	*	0	--	-	--	-	--	-	*	0
...GOMPHONEMATACEAE										
....GOMPHONEMA	8	1	--	-	*	0	--	-	--	-
...NAVICULACEAE										
....NAVICULA	30	5	5	2	21	2	--	-	160	6
....NEIDIUM	--	-	--	-	--	-	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	31	4	2	1	21	2	60	5	190	6
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....OCHROMONAS	--	-	--	-	9	1	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: IDI

13353200 SNAKE RIVER AT BURBANK, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	OCT 26,76 1150		NOV 18,76 1100		DEC 15,76 1130		FEB 23,77 1100		MAY 3,77 0950	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	110	14	--	-	--	-	--	-	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....APHANIZOMENON	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-
....PHORMIDIUM	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	--	-	--	-	51	6	--	-
...CRYPTOMONODACEAE										
....CRYPTOMONAS	--	-	--	-	*	0	--	-	*	0
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..GYMNODINIALES										
...GYMNODINIACEAE										
....GYMNODINIUM	--	-	--	-	--	-	9	1	*	0
..PERIDINIALES										
...CERATIACEAE										
....CERATIUM	--	-	--	-	--	-	--	-	--	-
...GLENODINIACEAE										
....GLENODINIUM	8	1	--	-	*	0	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

SAMPLING METHOD: EDI

13353200 SNAKE RIVER AT BURBANK, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

	JUN 7,77	JUL 6,77	AUG 4,77	SEP 13,77
DATE TIME	1235	1130	1100	1040
TOTAL CELLS/ML	4300	8200	3500	6100
DIVERSITY: DIVISION	0.3	0.9	0.6	0.7
.CLASS	0.3	0.9	0.6	0.7
..ORDER	1.2	1.2	0.7	1.2
...FAMILY	1.2	1.3	0.9	1.2
....GENUS	1.3	1.4	0.9	1.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	37	1	*	0
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	*	0	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	180	4	*	0	150	4	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	*	0	26	1	33	1
....CHODATELLA	--	-	--	-	--	-	--	-
....CLOSTERIOPSIS	--	-	--	-	*	0	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
....OOCYSTIS	--	-	--	-	*	0	120	2
....QUADRIGULA	--	-	--	-	67	1	--	-
....SELENASTRUM	--	-	--	-	26	1	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	--	-	--	-	31	1	--	-
....TETRASTRUM	--	-	--	-	--	-	44	1
..TETRASPORALES								
...PALMELLACEAE								
....GLOEOCYSTIS	--	-	--	-	--	-	*	0
..ULOTRICHALES								
...ULOTRICHACEAE								
....HORMIDIUM	--	-	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	--	-	--	-
..ZYGNEMATALES								
...DESMIDIACEAE								
....STAURASTRUM	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	2600#	60	61	1	63	2	*	0
....MELOSIRA	--	-	1000	13	*	0	450	7
....STEPHANODISCUS	30	1	--	-	--	-	55	1
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-
....RHOICOSPHENIA	--	-	*	0	--	-	--	-
...CYMBELLACEAE								
....AMPHORA	--	-	*	0	--	-	*	0
....CYMBELLA	--	-	*	0	--	-	--	-
....EPITHEMIA	--	-	--	-	*	0	--	-
...DIATOMACEAE								
....DIATOMA	--	-	*	0	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	1500#	35	210	3	--	-	--	-
....FRAGILARIA	--	-	950	11	--	-	--	-
....HANNAEA	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	69	1	--	-	33	1
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	*	0	--	-	--	-
...NAVICULACEAE								
....NAVICULA	--	-	*	0	--	-	33	1
....NEIDIUM	30	1	--	-	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	*	0	--	-	*	0
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...OCHROMONADACEAE								
....OCHROMONAS	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: EDI

13353200 SNAKE RIVER AT BURBANK, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	JUN 7,77 1235		JUL 6,77 1130		AUG 4,77 1100		SEP 13,77 1040	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....ANACYSTIS	--	-	--	-	57	2	500	8
..HORMOGONALES								
...NOSTOCACEAE								
....APHANIZOMENON	--	-	--	-	31000#	87	--	-
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	58000#	71	--	-	39000#	63
....PHORMIDIUM	--	-	--	-	--	-	900	15
EUGLENOPHYTA (EUGLENOIDS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONODACEAE								
....CRYPTOMONAS	--	-	*	0	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..GYMNODINIALES								
...GYMNODINIACEAE								
....GYMNODINIUM	--	-	--	-	--	-	--	-
..PERIDINIALES								
...CERATIACEAE								
....CERATIUM	--	-	--	-	*	0	--	-
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: EDI

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-SPECT-METRIC (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-SPECT-METRIC (MG/M2)	LENGTH OF EXPO-SURE (DAYS)
OCT							
26...	1150	--	6.05	10.0	--	--	36
JAN							
19...	1200	1571	.154	.231	.049	.000	35

SAMPLING METHOD: Polyethylene Strip.

13353200 SNAKE RIVER AT BURBANK, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	240	237	238	316	312	314	311	308	310	301	296	298
2	240	239	239	322	317	320	311	306	308	303	300	301
3	242	241	241	328	324	326	313	309	311	307	301	304
4	244	241	243	329	326	328	314	308	310	307	302	305
5	249	244	246	328	327	327	316	309	312	310	305	307
6	255	249	251	329	325	327	319	314	317	321	308	313
7	260	255	257	331	328	329	317	310	313	334	320	325
8	269	262	265	333	330	331	316	308	311	337	329	335
9	276	269	272	337	332	335	320	312	316	344	330	339
10	285	275	279	338	336	338	317	312	315	349	339	344
11	296	286	292	340	337	339	313	304	308	352	347	349
12	304	298	300	340	337	339	304	293	298	[illegible]	350	353
13	307	304	305	342	340	341	292	289	290	361	355	358
14	310	307	309	339	338	338	289	287	288	363	359	361
15	312	309	311	338	335	337	287	285	286	363	358	361
16	315	312	313	336	329	332	287	256	276	364	360	362
17	315	311	312	327	326	327	285	279	280	363	357	360
18	312	303	309	335	330	332	289	286	288	360	354	356
19	304	295	300	336	332	333	285	278	280	357	347	352
20	298	286	292	335	333	334	279	276	278	347	341	343
21	288	283	285	335	332	333	288	276	277	344	333	337
22	284	280	281	336	332	333	283	277	280	336	330	331
23	282	279	281	333	329	330	286	282	284	333	330	331
24	281	280	281	329	325	326	290	286	288	335	329	331
25	281	277	279	328	322	324	291	286	290	343	331	336
26	281	277	279	328	325	326	289	287	288	365	339	343
27	284	280	282	325	323	324	289	285	287	365	333	336
28	295	285	289	323	316	318	292	288	290	337	333	335
29	304	297	301	316	313	315	292	289	290	333	328	331
30	308	305	306	314	310	311	294	289	292	329	326	325
31	311	308	309	---	---	---	297	293	295	322	319	321
MONTH	315	237	282	342	310	329	320	256	295	364	296	335

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	319	316	316	---	---	---	335	325	330	299	275	288
2	---	---	---	---	---	---	336	329	332	275	259	268
3	---	---	---	---	---	---	335	331	336	268	253	252
4	---	---	---	---	---	---	---	---	---	245	226	236
5	---	---	---	---	---	---	---	---	---	223	213	219
6	---	---	---	---	---	---	---	---	---	213	203	209
7	---	---	---	---	---	---	---	---	---	206	199	202
8	---	---	---	---	---	---	---	---	---	201	197	198
9	---	---	---	---	---	---	---	---	---	197	187	192
10	---	---	---	---	---	---	---	---	---	189	178	183
11	---	---	---	---	---	---	---	---	---	180	172	177
12	---	---	---	---	---	---	---	---	---	173	162	169
13	---	---	---	---	---	---	---	---	---	163	156	159
14	---	---	---	---	---	---	---	---	---	156	149	151
15	---	---	---	---	---	---	340	333	336	149	141	145
16	---	---	---	---	---	---	369	361	366	142	136	139
17	---	---	---	---	---	---	372	368	369	136	133	136
18	---	---	---	---	---	---	361	353	356	135	132	133
19	---	---	---	---	---	---	365	361	363	136	130	132
20	---	---	---	---	---	---	368	366	366	137	132	134
21	---	---	---	---	---	---	371	366	367	140	134	137
22	---	---	---	---	---	---	369	366	367	135	130	132
23	---	---	---	---	---	---	367	366	366	131	123	128
24	---	---	---	---	---	---	367	361	365	127	122	125
25	---	---	---	---	---	---	366	359	361	125	121	123
26	---	---	---	---	---	---	362	357	359	125	121	122
27	---	---	---	---	---	---	357	350	354	126	122	123
28	---	---	---	---	---	---	351	341	348	125	121	122
29	---	---	---	328	323	325	341	326	336	124	119	122
30	---	---	---	329	325	327	327	299	314	121	119	120
31	---	---	---	332	325	328	---	---	---	119	117	118
MONTH	319	316	316	---	---	---	371	299	350	299	117	166

13353200 SNAKE RIVER AT BURBANK, WA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	117	114	116	128	124	125	197	185	191	218	216	218
2	118	115	117	126	124	125	207	190	198	218	216	217
3	120	115	117	129	126	127	208	197	203	219	216	218
4	120	116	118	129	126	127	214	198	206	219	217	218
5	123	117	119	129	127	128	209	191	200	221	217	219
6	125	120	122	136	129	132	210	197	203	227	218	220
7	128	122	125	147	129	136	---	---	---	223	221	222
8	129	124	126	149	146	148	---	---	---	224	222	224
9	127	123	124	148	146	147	---	---	---	226	216	224
10	123	115	120	148	133	142	---	---	---	227	225	226
11	118	113	115	142	131	136	---	---	---	228	223	226
12	117	112	114	137	131	133	---	---	---	230	222	227
13	114	112	113	139	131	134	---	---	---	234	228	231
14	116	112	114	142	133	136	---	---	---	236	230	232
15	118	114	115	143	135	139	---	---	---	240	232	236
16	119	114	116	145	139	141	---	---	---	241	236	238
17	119	114	116	146	140	142	---	---	---	243	237	240
18	118	115	117	148	144	146	212	207	210	242	239	241
19	[illegible]	115	118	152	147	150	213	209	211	251	237	243
20	119	114	116	156	150	152	214	208	210	252	243	248
21	118	115	116	159	151	156	216	208	212	257	245	252
22	120	116	117	169	153	161	214	211	212	255	248	252
23	120	115	116	169	161	165	212	211	211	252	249	251
24	118	115	116	173	166	170	212	209	211	254	251	253
25	118	115	116	173	169	171	213	211	212	255	253	254
26	123	114	118	178	169	176	213	211	212	259	252	256
27	122	117	120	183	169	177	216	212	214	256	254	255
28	123	119	121	186	178	181	218	215	216	257	256	256
29	125	122	123	192	182	188	219	215	217	258	256	257
30	125	122	124	196	185	189	216	209	213	260	257	259
31	---	---	---	192	181	186	218	213	216	---	---	---
MONTH	129	112	118	196	124	150	219	185	209	260	216	237
YEAR	371	112	205									

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.5	19.0	19.0	14.0	13.5	14.0	8.5	8.5	8.5	4.5	4.5	4.5
2	19.0	18.5	19.0	13.5	13.5	13.5	8.5	8.5	8.5	4.5	4.5	4.5
3	18.5	18.0	18.5	13.5	13.0	13.5	8.5	8.5	8.5	4.5	4.5	4.5
4	18.5	18.0	18.5	13.5	13.0	13.5	8.5	8.0	8.0	4.5	4.5	4.5
5	18.5	18.0	18.0	13.5	13.5	13.5	8.0	8.0	8.0	4.5	4.0	4.0
6	18.5	17.5	18.0	13.5	13.0	13.0	8.0	8.0	8.0	4.0	4.0	4.0
7	18.0	17.0	17.5	13.0	13.0	13.0	8.0	7.5	7.5	4.0	3.5	3.5
8	18.0	17.0	17.5	13.0	13.0	13.0	7.5	7.5	7.5	3.5	3.5	3.5
9	18.0	17.0	17.5	13.0	13.0	13.0	7.5	7.0	7.5	3.5	3.0	3.0
10	18.0	17.5	17.5	13.0	13.0	13.0	7.0	7.0	7.0	3.0	3.0	3.0
11	18.0	17.5	18.0	13.0	12.5	12.5	7.0	7.0	7.0	3.0	3.0	3.0
12	18.0	17.5	17.5	12.5	12.5	12.5	7.0	6.5	6.5	3.0	3.0	3.0
13	18.0	17.0	17.5	12.5	12.0	12.0	6.5	6.5	6.5	3.0	2.5	2.5
14	17.5	17.0	17.0	12.0	12.0	12.0	6.5	6.0	6.5	3.0	2.5	2.5
15	17.5	16.5	17.0	12.0	12.0	12.0	6.0	6.0	6.0	2.5	2.5	2.5
16	17.0	16.5	17.0	12.0	12.0	12.0	6.0	6.0	6.0	2.5	2.5	2.5
17	17.0	16.5	16.5	12.0	11.5	12.0	6.0	6.0	6.0	2.5	2.5	2.5
18	16.5	16.0	16.5	11.5	11.5	11.5	6.0	6.0	6.0	3.0	2.5	2.5
19	16.5	15.5	16.0	11.5	11.0	11.0	6.0	5.5	5.5	3.0	2.5	3.0
20	16.0	15.5	15.5	11.0	10.5	11.0	5.5	5.5	5.5	3.0	3.0	3.0
21	15.5	15.0	15.5	11.0	11.0	11.0	5.5	5.5	5.5	3.0	3.0	3.0
22	15.5	15.0	15.0	11.0	10.5	10.5	5.5	5.5	5.5	3.0	3.0	3.0
23	15.0	14.5	15.0	10.5	10.5	10.5	5.5	5.0	5.0	3.0	3.0	3.0
24	15.0	14.5	14.5	10.5	10.0	10.5	5.0	5.0	5.0	3.0	3.0	3.0
25	14.5	14.0	14.5	10.0	10.0	10.0	5.0	5.0	5.0	3.0	3.0	3.0
26	15.0	14.5	14.5	10.0	9.5	10.0	5.0	5.0	5.0	2.5	2.5	2.5
27	14.5	14.0	14.5	9.5	9.5	9.5	5.0	5.0	5.0	2.5	2.5	2.5
28	14.5	14.0	14.5	9.5	9.5	9.5	4.5	4.5	4.5	2.5	2.5	2.5
29	14.0	13.5	14.0	9.5	9.0	9.0	4.5	4.5	4.5	2.5	2.5	2.5
30	14.0	13.5	13.5	9.0	9.0	9.0	4.5	4.5	4.5	2.5	2.5	2.5
31	14.0	13.5	13.5	---	---	---	4.5	4.5	4.5	2.5	2.5	2.5
MONTH	19.5	13.5	16.5	14.0	9.0	11.5	8.5	4.5	6.5	4.5	2.5	3.0

13353200 SNAKE RIVER AT BURBANK, WA--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.5	2.5	2.5	4.5	4.0	4.0	6.5	6.0	6.5	12.0	11.5	11.5
2	2.5	2.5	2.5	4.5	4.5	4.5	6.5	6.5	6.5	12.0	11.5	11.5
3	2.5	2.5	2.5	4.5	4.5	4.5	7.5	6.5	7.0	12.0	11.5	12.0
4	2.5	2.5	2.5	4.5	4.5	4.5	7.5	6.5	7.0	12.0	11.5	11.5
5	2.5	2.5	2.5	4.5	4.5	4.5	7.5	6.5	7.0	12.0	11.5	11.5
6	2.5	2.5	2.5	4.5	4.5	4.5	8.0	7.0	7.5	11.5	11.5	11.5
7	2.5	2.5	2.5	4.5	4.5	4.5	7.5	7.0	7.5	12.0	11.5	12.0
8	2.5	2.5	2.5	4.5	4.5	4.5	7.5	7.5	7.5	12.5	12.0	12.0
9	2.5	2.5	2.5	4.5	4.5	4.5	8.0	7.5	7.5	12.5	12.0	12.5
10	3.0	2.5	3.0	5.0	4.5	5.0	8.0	8.0	8.0	12.5	12.5	12.5
11	3.0	3.0	3.0	5.0	4.5	5.0	8.5	8.0	8.0	13.0	12.5	12.5
12	4.0	3.0	3.5	5.0	5.0	5.0	8.5	8.5	8.5	13.0	13.0	13.0
13	4.0	3.5	4.0	5.0	5.0	5.0	8.5	8.0	8.5	13.5	13.0	13.0
14	3.5	3.5	3.5	5.0	5.0	5.0	8.5	8.0	8.0	13.5	13.0	13.5
15	3.5	3.5	3.5	5.0	5.0	5.0	8.5	8.5	8.5	13.5	13.0	13.0
16	3.5	3.5	3.5	5.0	5.0	5.0	8.5	8.5	8.5	13.5	13.0	13.5
17	4.0	4.0	4.0	5.0	5.0	5.0	9.0	8.5	8.5	13.5	13.5	13.5
18	4.0	4.0	4.0	5.0	5.0	5.0	9.0	8.5	8.5	13.5	13.5	13.5
19	4.0	4.0	4.0	5.0	5.0	5.0	9.0	8.5	8.5	13.5	13.5	13.5
20	4.0	4.0	4.0	5.5	5.0	5.0	9.0	8.5	9.0	14.0	13.5	13.5
21	4.0	4.0	4.0	5.5	5.0	5.0	9.0	9.0	9.0	14.0	13.5	13.5
22	4.0	4.0	4.0	6.0	5.0	5.5	10.0	9.0	9.5	14.5	13.5	14.0
23	4.0	4.0	4.0	6.0	5.5	5.5	10.0	9.5	9.5	14.0	13.5	14.0
24	4.0	4.0	4.0	5.5	5.5	5.5	10.0	9.5	10.0	14.0	13.5	13.5
25	4.0	4.0	4.0	6.0	5.5	6.0	9.5	9.5	9.5	14.0	13.5	13.5
26	4.0	4.0	4.0	6.0	5.5	6.0	10.5	9.5	10.0	14.0	13.5	13.5
27	4.5	4.0	4.0	6.0	6.0	6.0	11.0	10.5	10.5	13.5	13.5	13.5
28	4.5	4.0	4.0	6.0	5.5	6.0	11.0	10.5	11.0	14.0	13.5	13.5
29	---	---	---	6.0	6.0	6.0	11.0	10.5	11.0	14.0	13.5	13.5
30	---	---	---	6.0	6.0	6.0	11.5	11.0	11.0	13.5	13.5	13.5
31	---	---	---	6.0	6.0	6.0	---	---	---	14.0	14.0	14.0
MONTH	4.5	2.5	3.5	6.0	4.0	5.0	11.5	6.0	8.5	14.5	11.5	13.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14.0	14.0	14.0	20.5	19.5	20.0	22.5	21.5	22.0	21.5	20.5	21.0
2	14.5	14.0	14.0	20.0	19.5	20.0	---	---	---	21.5	20.5	21.0
3	14.5	14.0	14.0	20.5	20.0	20.0	---	---	---	21.0	20.5	21.0
4	14.5	14.0	14.5	20.0	19.5	20.0	---	---	---	21.0	20.5	21.0
5	15.0	14.0	14.5	20.0	19.5	19.5	---	---	---	21.5	21.0	21.0
6	15.0	14.5	14.5	19.5	19.5	19.5	23.0	21.5	22.5	21.0	20.0	21.0
7	15.5	14.5	15.0	19.5	19.0	19.5	22.5	20.5	22.0	21.0	20.5	20.5
8	16.0	15.0	15.5	19.5	19.0	19.5	23.0	22.0	22.5	21.0	20.5	20.5
9	16.0	15.5	15.5	19.5	19.5	19.5	22.5	22.0	22.0	21.0	20.5	20.5
10	16.0	15.5	15.5	20.0	19.5	19.5	22.5	22.0	22.0	21.0	20.5	21.0
11	15.5	15.5	15.5	20.0	19.5	19.5	22.5	22.0	22.5	21.0	20.5	20.5
12	16.5	15.5	16.0	20.5	19.5	20.0	22.5	22.5	22.5	21.5	20.5	20.5
13	16.5	16.0	16.0	20.5	19.5	20.0	23.0	22.5	22.5	21.5	20.5	21.0
14	16.5	16.0	16.0	20.5	20.0	20.0	23.5	21.0	22.5	21.0	20.5	20.5
15	16.5	16.0	16.0	21.0	20.0	20.5	22.5	22.0	22.0	21.0	20.0	20.5
16	17.0	16.0	16.5	21.0	20.5	20.5	22.5	21.5	22.0	20.5	20.0	20.5
17	18.0	17.0	17.5	21.0	20.5	20.5	23.0	21.5	22.5	20.5	20.0	20.0
18	18.0	17.5	18.0	20.5	20.0	20.0	23.0	22.0	23.0	20.0	20.0	20.0
19	18.5	18.0	18.0	21.0	20.0	20.5	23.0	22.5	23.0	20.0	19.5	19.5
20	18.0	17.5	17.5	21.5	20.5	20.5	23.0	22.5	23.0	20.0	19.0	19.5
21	18.5	17.5	18.0	21.5	21.0	21.0	23.5	22.5	23.0	19.5	18.5	19.0
22	19.0	18.5	19.0	21.5	20.5	21.0	23.0	22.5	22.5	20.0	19.0	19.5
23	19.0	18.5	19.0	21.5	21.0	21.0	23.0	22.0	22.5	19.5	18.5	19.0
24	19.0	19.0	19.0	21.5	21.0	21.5	23.0	22.5	22.5	19.0	18.5	18.5
25	20.0	19.0	19.5	22.5	21.0	21.5	22.5	21.5	22.0	18.5	18.0	18.5
26	20.0	19.0	19.5	22.0	21.5	21.5	22.5	22.0	22.0	18.5	18.0	18.5
27	19.5	19.0	19.5	22.5	21.5	22.0	22.5	22.0	22.0	18.5	18.0	18.0
28	20.0	19.5	19.5	22.0	21.5	21.5	22.5	21.0	22.0	18.0	18.0	18.0
29	20.0	19.5	20.0	22.0	20.5	21.5	21.5	21.0	21.0	18.0	17.5	18.0
30	20.5	19.5	20.0	22.0	20.5	21.5	21.5	21.0	21.0	18.0	17.5	17.5
31	---	---	---	22.5	20.0	21.5	21.5	21.0	21.0	---	---	---
MONTH	20.5	14.0	17.0	22.5	19.0	20.5	23.5	20.5	22.0	21.5	17.5	20.0
YEAR	23.5	2.5	12.0									

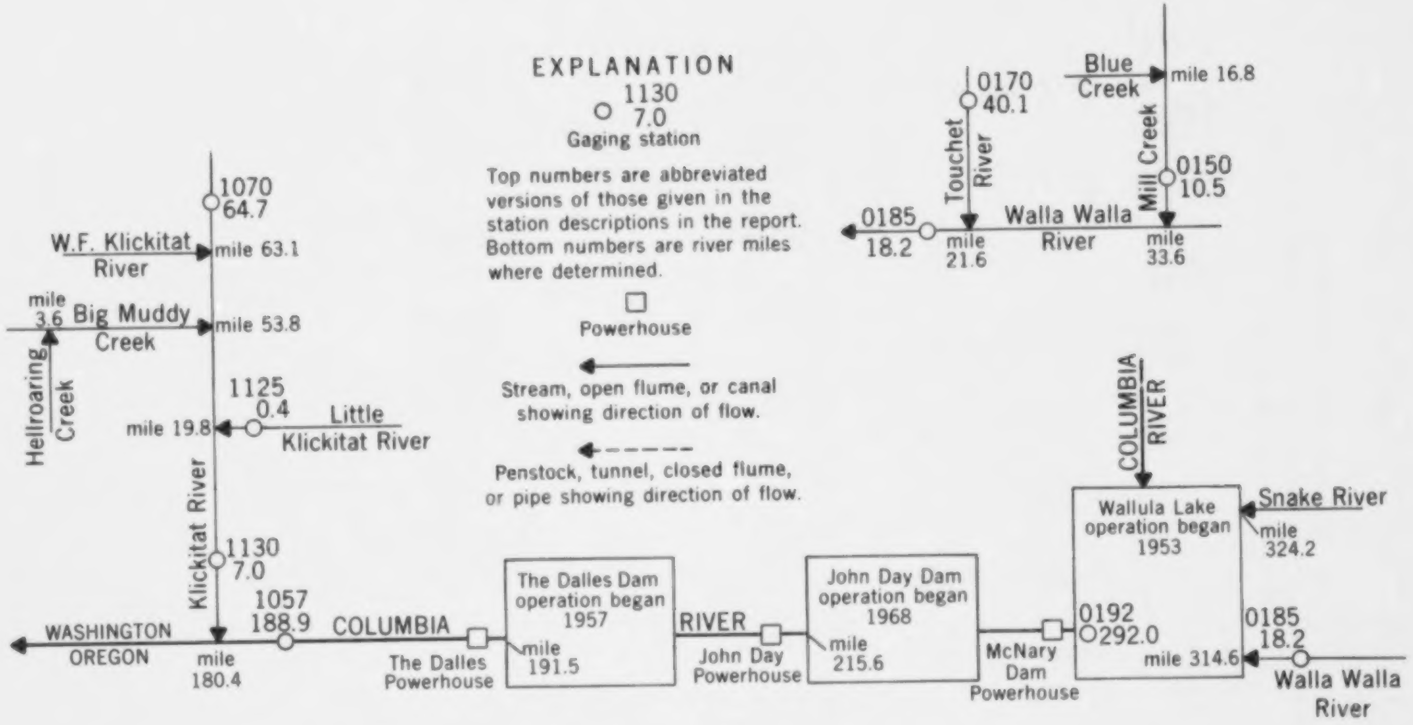
EXPLANATION
1130
7.0
Gaging station
Top numbers are abbreviated versions of those given in the station descriptions in the report. Bottom numbers are river miles where determined.
Powerhouse
Stream, open flume, or canal showing direction of flow.
Penstock, tunnel, closed flume, or pipe showing direction of flow.
1070
64.7
W.F. Klickitat River
mile 63.1
mile 3.6
Big Muddy Creek
mile 53.8
Hellroaring Creek
1125
0.4
Little Klickitat River
mile 19.8
Klickitat River
1130
7.0
1057
188.9
WASHINGTON
OREGON
mile 180.4
COLUMBIA
The Dalles Powerhouse
The Dalles Dam operation began 1957
mile 191.5
RIVER
John Day Powerhouse
John Day Dam operation began 1968
mile 215.6
McNary Dam Powerhouse
Wallula Lake operation began 1953
0192
292.0
mile 314.6
COLUMBIA RIVER
Snake River
mile 324.2
0185
18.2
Walla Walla River
0170
40.1
Touchet River
Blue Creek
mile 16.8
Mill Creek
0150
10.5
0185
18.2
mile 21.6
Walla Walla River
mile 33.6

Figure 18. Gaging stations in Columbia River basin between Wallula Lake and Klickitat River.

14012600 WALLA WALLA RIVER NEAR COLLEGE PLACE, WA

LOCATION.--Lat 46°00'46", long 118°23'18", in NE¼SE¼ sec.11, T.6 N., R.35 E., Walla Walla County, Hydrologic Unit 17070102, at State Highway 125 bridge, 1.6 mi (2.6 km) south of College Place.

DRAINAGE AREA.--About 240 mi² (622 km²).

PERIOD OF RECORD.--Water years 1974-75, Sept. 20 to Sept. 21, 1977 (discontinued).

COOPERATION.--Coliform analyses were performed by the Washington State Department of Ecology.

WATER QUALITY DATA, SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
20...	1010	10	185	7.6	14.3	1	9.6	96	B1000	400	75
20...	1140	10	181	8.0	15.8	--	10.6	109	--	--	--
20...	1255	10	181	8.3	16.8	--	11.0	115	--	--	--
20...	1430	10	184	8.5	17.4	1	10.9	116	B300	96	--
20...	1605	10	181	8.5	17.4	--	10.4	110	--	--	--
20...	1740	10	184	8.5	17.4	--	10.1	107	--	--	--
20...	1845	10	184	8.3	16.6	1	9.6	100	B1000	120	--
20...	2300	10	179	7.6	14.8	--	8.2	82	--	--	--
21...	0130	10	189	7.6	13.8	--	8.2	80	--	--	--
21...	0415	10	190	7.6	14.0	1	8.3	82	B1000	300	--
21...	0645	10	185	7.7	13.0	--	8.4	81	--	--	--
21...	1010	10	190	7.9	14.4	--	10.1	100	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
20...	0	19	6.8	8.4	3.6	104	0	85	4.2	4.5
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	100	2	85	.5	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
SEP										
20...	3.6	.1	38	135	8	.58	.05	.21	.05	.04
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	7	.50	.04	.17	.05	.05
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

14015000 MILL CREEK AT WALLA WALLA, WA

LOCATION.--Lat 46°04'35", long 118°16'21", in NE¼NW¼ sec.23, T.7 N., R.36 E., Walla Walla County, Hydrologic Unit 17070102, on left bank, 200 ft (61 m) downstream from diversion dam, 1.5 mi (2.4 km) east of Walla Walla, and at mile 10.5 (16.9 km).

DRAINAGE AREA.--95.7 mi^2 (247.9 km^2).

PERIOD OF RECORD.--April 1941 to current year.

REVISED RECORDS.--WSP 1288: Drainage area. WSP 1348: 1943, 1945-46.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,165.49 ft (355.241 m) above mean sea level (Corps of Engineers bench mark). April 1941 to June 11, 1941, nonrecording gage and June 11, 1941, to Jan. 22, 1957, water-stage recorder, at sites 0.8 mi (1.3 km) downstream at different datum.

REMARKS.--Records good except those below 20 ft^3/s (0.57 m^3/s) which are poor. Some regulation at diversion dam 200 ft (61 m) upstream from station where water is diverted into Yellowhawk and Garrison Creeks for stock and irrigation. Since Nov. 19, 1941, water has been diverted 1.0 mi (1.6 km) upstream into Mill Creek Reservoir for flood control with release of stored water after flood into Russell Creek, and is also diverted as required to replenish losses from seepage and evaporation from small recreation pool maintained in the reservoir. City of Walla Walla diverts water for municipal supply about 11 mi (18 km) upstream. Other small diversions above station for irrigation.

COOPERATION.--Gage-height record and 4 discharge measurements furnished by the Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 ft^3/s (78.2 m^3/s) Dec. 28, 1945 (corrected), gage height, 4.0 ft (1.22 m), site and datum then in use; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 214 ft^3/s (6.06 m^3/s) Apr. 8, gage height, 2.67 ft (0.814 m); no flow Nov. 11-13, 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.97	58	4.6	16	16	43	63	9.8	.36	.52	.52	.72
2	.72	36	4.6	15	16	55	63	14	.52	.36	.52	.52
3	.72	28	4.6	15	16	61	61	28	.36	.36	.52	.52
4	.72	23	4.6	14	16	61	63	32	.36	.36	.52	.36
5	.72	16	4.6	7.1	16	43	86	23	.52	.36	.52	.36
6	.72	13	4.6	25	16	41	125	19	.36	.36	.52	.36
7	.72	7.1	16	35	15	69	163	19	.36	1.7	.52	.36
8	.72	8.3	22	33	15	116	201	13	.24	2.4	.52	.36
9	.72	.36	22	30	16	182	156	8.7	.24	1.7	.52	.24
10	.72	.01	18	30	16	174	119	16	.36	1.3	.52	.24
11	.72	.00	12	30	16	128	91	19	.36	.72	.72	.24
12	.72	.00	12	35	16	108	72	12	.36	.52	.72	.24
13	.72	.00	12	50	23	94	66	.81	.36	.52	.52	.24
14	.72	.16	12	59	28	84	61	.73	.36	.52	.52	.24
15	.72	.17	12	59	18	84	53	.81	.36	.52	.52	.24
16	.97	.00	12	67	13	79	43	.82	.36	.52	.72	.15
17	.97	.21	10	47	7.1	69	43	.75	.52	.36	.72	.24
18	9.4	13	10	36	1.7	61	43	4.5	.52	.36	.72	.24
19	3.4	14	10	43	1.3	55	38	7.3	.72	.52	.72	.24
20	.15	10	10	41	1.3	55	27	7.1	.72	.52	.72	.16
21	.15	8.3	10	39	4.6	55	19	5.9	.72	.52	.72	.21
22	.15	7.1	10	38	2.4	47	22	.72	.97	.52	.52	.18
23	.15	7.1	10	36	7.1	43	20	6.4	.97	.52	.72	.17
24	.36	5.9	10	36	10	45	21	8.1	.72	.36	.72	.21
25	37	5.9	10	25	9.4	45	30	.15	.72	.36	.72	.20
26	36	5.9	23	18	7.1	43	33	.15	.52	.36	.72	.21
27	19	5.9	23	18	.72	43	30	.15	.52	.36	.72	.16
28	16	5.9	27	16	12	49	26	.15	.52	.36	.52	.21
29	3.8	5.9	27	16	---	69	20	.15	.36	.36	.52	.34
30	.15	4.6	25	16	---	63	13	.15	.52	.52	25	10
31	2.4	---	19	16	---	61	---	.24	---	.52	28	---
TOTAL	141.10	289.81	411.6	961.1	336.72	2225	1871	258.58	14.86	19.26	70.68	18.16
MEAN	4.55	9.66	13.3	31.0	12.0	71.8	62.4	8.34	.50	.62	2.28	.61
MAX	37	58	27	67	28	182	201	32	.97	2.4	28	10
MIN	.15	.00	4.6	7.1	.72	41	13	.15	.24	.36	.52	.15
AC-FT	280	575	816	1910	668	4410	3710	513	29	38	140	36

CAL YR 1976 TOTAL 38657.28 MEAN 106 MAX 1080 MIN .00 AC-FT 76680
WTR YR 1977 TOTAL 6617.87 MEAN 18.1 MAX 201 MIN .00 AC-FT 13130

14015002 MILL CREEK AT TAUSICK WAY AT WALLA WALLA, WA

LOCATION.--Lat 46°04'34", long 118°16'58", in NE¼NE¼ sec.22, T.7 N., R.36 E., Walla Walla County, Hydrologic Unit 17070102, at Tausick Way bridge, 0.5 mi (0.8 km) downstream from gaging station, and 0.9 mi (1.4 km) east of Walla Walla.

DRAINAGE AREA.--95.7 mi² (247.9 km²).

PERIOD OF RECORD.--Water years 1974, Sept. 20 to Sept. 21, 1977 (discontinued).

COOPERATION.--Coliform analyses were performed by the Washington State Department of Ecology.

WATER QUALITY DATA, SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
20...	0830	E5.0	107	7.7	13.4	2	9.4	93	B1300	B900	41
20...	1100	--	102	7.6	14.0	--	10.2	102	--	--	--
20...	1215	--	106	7.9	14.8	--	10.4	106	--	--	--
20...	1340	--	106	8.0	15.6	2	10.6	110	B190	B130	--
20...	1530	--	99	8.0	16.4	--	10.6	112	--	--	--
20...	1650	--	100	8.1	16.6	--	10.4	110	--	--	--
20...	1805	--	103	8.3	16.2	2	10.2	107	B180	48	--
20...	2100	--	100	7.9	15.0	--	9.9	101	--	--	--
20...	2330	--	106	7.5	14.4	--	9.2	93	--	--	--
21...	0205	--	111	7.7	13.6	2	9.1	90	B1000	B100	--
21...	0455	--	110	7.7	13.2	--	9.3	91	--	--	--
21...	0715	E5.0	105	7.7	13.0	--	9.5	93	--	--	--

B Results based upon colony counts outside the ideal range.
E Estimated.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
20...	0	10	3.9	4.8	3.1	63	0	52	2.0	1.4
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	62	0	51	1.0	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
SEP										
20...	1.5	.2	35	91	12	.33	.08	.17	.05	.03
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	2	.31	.05	.17	.04	.03
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

14017000 TOUCHET RIVER AT BOLLES, WA

LOCATION.--Lat 46°16'28", long 118°13'13", on line between secs.7 and 8, T.9 N., R.37 E., Walla Walla County, Hydrologic Unit 17070102, on right bank just downstream from bridge on State Highway 124, 0.4 mi (0.6 km) southeast of Bolles, 2.9 mi (4.7 km) downstream from Coppei Creek, and at mile 40.1 (64.5 km).

DRAINAGE AREA.--361 mi² (935 km²).

PERIOD OF RECORD.--February 1924 to October 1929, April 1951 to current year. Monthly discharge only for February and March 1929, published in WSP 1318. Chemical analyses October 1973 to September 1975, sediment records July 1962 to September 1965 (partial-record station).

REVISED RECORDS.--WSP 1448: 1952-53(M). WSP 1935: Drainage area.

GAGE.--Nonrecording gage. Altitude of gage is 1,150 ft (351 m), from topographic map. Prior to Oct. 5, 1929, water-stage recorder at site 0.5 mi (0.8 km) upstream at different datum. Apr. 1 to May 6, 1951, nonrecording gage, and May 7, 1951, to Sept. 30, 1968, water-stage recorder and wire-weight gage at present site and datum.

REMARKS.--Records good. Diurnal fluctuation and some regulation at low flow caused by operation of flour mill at Waitsburg 3 mi (5 km) upstream. Numerous small diversions for municipal and domestic use and for irrigation.

AVERAGE DISCHARGE.--31 years (water years 1925-29, 1952-77), 234 ft³/s (6.627 m³/s) 169,500 acre-ft/yr (209 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,350 ft³/s (265 m³/s) Dec. 23, 1964, gage height, 14.06 ft (4.285 m), from rating curve extended above 3,800 ft³/s (108 m³/s) on basis of slope-area measurement of peak flow; minimum, 1.4 ft³/s (0.040 m³/s) July 30, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 15	0700	----		(a)*4.31	1.314	Mar. 9	1300	*315	8.92	3.68	1.122

a Maximum recorded.

Minimum daily discharge, 25 ft³/s (0.708 m³/s) Aug. 20, 21, 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	158	73	80	79	98	131	102	85	34	27	74
2	56	125	74	78	78	99	128	105	95	36	27	60
3	57	98	74	75	77	99	125	113	90	39	26	57
4	58	90	73	72	76	97	131	128	92	39	26	53
5	61	85	73	70	76	92	154	116	88	44	26	51
6	61	85	71	65	74	93	175	108	78	43	26	49
7	61	83	78	65	73	100	211	102	74	40	26	46
8	58	83	83	68	73	146	246	100	71	37	26	45
9	58	83	91	70	75	244	233	105	67	36	26	46
10	58	80	85	75	78	219	195	113	62	38	26	46
11	58	80	82	80	79	174	164	113	60	38	26	43
12	58	80	79	85	78	155	147	110	62	35	26	43
13	58	80	78	90	82	148	154	108	62	36	26	40
14	57	80	78	95	79	131	150	102	60	36	26	39
15	57	80	76	100	75	121	137	98	55	33	26	38
16	58	80	76	105	74	122	140	95	53	28	26	40
17	58	80	76	110	73	122	137	95	53	27	26	42
18	58	90	76	120	72	119	125	125	51	36	26	43
19	60	88	74	113	70	122	119	125	51	36	26	45
20	62	83	72	103	73	116	113	110	48	33	25	47
21	67	83	73	98	77	110	113	102	46	27	25	51
22	64	82	73	95	87	113	119	98	44	27	26	53
23	64	80	80	92	81	125	125	100	42	27	25	51
24	64	80	82	88	76	131	134	105	43	26	27	60
25	85	80	77	85	73	128	144	95	41	35	29	69
26	113	79	98	82	75	122	137	100	41	30	32	62
27	88	74	102	83	75	128	125	105	38	27	38	57
28	80	71	94	80	85	131	113	102	36	26	35	62
29	78	72	90	78	---	122	110	100	35	27	41	80
30	76	73	85	77	---	116	105	92	37	27	147	85
31	76	---	83	78	---	113	---	92	---	27	125	---
TOTAL	2022	2565	2479	2655	2143	3956	4340	3264	1760	1030	1071	1577
MEAN	65.2	85.5	80.0	85.6	76.5	128	145	105	58.7	33.2	34.5	52.6
MAX	113	158	102	120	87	244	246	128	95	44	147	85
MIN	55	71	71	65	70	92	105	92	35	26	25	38
AC-FT	4010	5090	4920	5270	4250	7850	8610	6470	3490	2040	2120	3130

CAL YR 1976 TOTAL 102784 MEAN 281 MAX 1710 MIN 53 AC-FT 203900
WTR YR 1977 TOTAL 28862 MEAN 79.1 MAX 246 MIN 25 AC-FT 57250

14017600 TOUCHET RIVER AT TOUCHET, WA

LOCATION.--Lat 46°02'29", long 118°40'59", in NE¼SE¼ sec.35, T.7 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, at U.S. Highway 410 bridge, 0.5 mi (0.8 km) upstream from mouth, and 0.6 mi (1.0 km) west of Touchet.

DRAINAGE AREA.--About 750 mi² (1,940 km²).

PERIOD OF RECORD.--Water years 1972, 1974-75, Sept. 20 to Sept. 21, 1977. Prior to October 1973, published as 14017500.

COOPERATION.--Coliform analyses were performed by the Washington State Department of Ecology.

QUALITY WATER DATA, SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
20...	0850	.90	415	7.5	15.6	10	7.5	76	B2000	B150	170
20...	1040	--	415	7.5	15.9	--	7.8	79	--	--	--
20...	1135	--	415	7.5	16.2	--	8.2	84	--	--	--
20...	1225	--	410	7.5	16.6	--	8.5	88	--	--	--
20...	1315	--	405	7.6	17.0	--	8.2	92	--	--	--
20...	1430	--	380	7.6	17.0	10	8.9	93	42000	180	--
20...	1620	--	360	7.6	17.2	--	9.1	95	--	--	--
20...	1710	--	400	7.7	17.1	--	9.1	95	--	--	--
20...	1920	--	395	7.7	16.6	10	9.0	93	B640	110	--
20...	2220	--	415	7.8	15.8	--	8.9	90	--	--	--
21...	0050	--	395	7.9	15.2	--	8.6	86	--	--	--
21...	0330	--	425	7.9	15.0	10	8.7	87	B900	190	--
21...	0605	--	420	7.9	14.6	--	8.6	85	--	--	--
21...	0835	4.9	460	7.9	14.6	--	8.6	85	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
20...	0	40	17	25	5.4	242	0	200	12	11
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	241	0	198	9.7	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
SEP										
20...	11	.2	29	258	28	1.2	.20	.59	.15	.07
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	22	.98	.22	.66	.15	.06
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

14018500 WALLA WALLA RIVER NEAR TOUCHET, WA

LOCATION.--Lat 46°01'40", long 118°43'43", in NW¼SE¼ sec.6, T.6 N., R.33 E., Walla Walla County, Hydrologic Unit 17070102, on left bank 0.8 mi (1.3 km) upstream from Gardena Creek, 2.8 mi (4.5 km) southwest of Touchet, 3.4 mi (5.5 km) downstream from Touchet River, and at mile 18.2 (29.3 km).

DRAINAGE AREA.--1,657 mi² (4,292 km²).

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 405 ft (123 m), from topographic map. Prior to Nov. 27, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good. Many diversions above station for irrigation.

AVERAGE DISCHARGE.--26 years, 596 ft³/s (16.88 m³/s) 431,800 acre-ft/yr (532 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft³/s (946 m³/s) Dec. 22, 1964, gage height, 18.90 ft (5.761 m), from rating curve extended above 15,000 ft³/s (425 m³/s) on basis of slope-area measurement of peak flow; no flow July 30 to Aug. 8, Aug. 12, 13, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft³/s (85.0 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 8	1100	*1,050	29.7	*5.49	1.673

Minimum discharge, 1.3 ft³/s (0.037 m³/s) Aug. 4, 5, gage height, 1.83 ft (0.558 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	136	215	346	342	220	257	60	65	13	4.0	106
2	52	295	235	332	335	271	283	60	65	14	3.3	98
3	65	184	260	310	320	289	262	81	75	13	3.3	75
4	73	150	298	290	325	298	257	128	74	15	1.8	66
5	70	134	304	260	319	260	320	120	81	16	10	68
6	69	122	304	240	319	237	482	100	69	17	9.7	63
7	65	112	316	240	319	304	675	87	59	18	7.1	55
8	68	112	322	270	319	470	950	78	43	14	7.5	45
9	68	114	295	270	319	650	880	77	37	11	6.0	39
10	60	116	260	265	325	875	660	82	31	9.3	5.4	40
11	64	116	260	265	320	655	522	91	30	9.3	4.5	41
12	60	114	225	285	320	514	409	96	31	12	4.3	41
13	54	114	225	320	320	458	356	90	30	10	3.3	38
14	52	116	227	350	346	413	363	86	29	9.3	3.3	37
15	50	120	235	381	332	363	295	76	31	8.9	3.0	35
16	49	124	250	384	304	319	257	74	31	7.8	3.0	36
17	50	128	255	434	283	310	255	73	27	5.0	2.2	37
18	52	128	255	454	283	276	220	70	26	6.8	2.8	37
19	60	150	267	510	262	262	180	110	30	9.3	3.8	48
20	61	150	267	490	255	255	148	100	24	10	4.0	46
21	60	158	247	456	268	247	128	84	21	10	4.3	55
22	59	162	255	426	268	225	108	70	21	8.9	3.0	69
23	59	168	271	402	247	227	98	73	23	7.5	2.5	71
24	63	168	286	386	220	298	116	79	18	5.4	2.4	84
25	70	176	289	374	190	277	160	78	16	5.4	4.3	95
26	150	176	322	363	172	247	190	70	13	5.0	15	103
27	172	172	376	353	162	250	158	78	11	6.4	15	90
28	114	205	395	349	180	286	114	87	11	5.0	19	91
29	100	202	381	339	---	283	77	75	10	4.0	24	130
30	91	207	370	332	---	253	65	86	11	3.0	63	166
31	88	---	360	320	---	230	---	75	---	4.3	260	---
TOTAL	2216	4545	8765	10800	8006	10520	9253	2597	1043	293.6	513.6	2075
MEAN	71.5	152	283	348	286	339	308	83.8	34.8	9.47	16.6	69.2
MAX	172	295	395	510	346	875	950	128	81	18	260	166
MIN	48	112	215	240	162	220	65	60	10	3.0	1.8	35
AC-FT	4400	9020	17390	21420	15880	20870	18350	5150	2070	582	1020	4120

CAL YR 1976 TOTAL 252719.0 MEAN 690 MAX 4750 MIN 21 AC-FT 501300
WTR YR 1977 TOTAL 60627.2 MEAN 166 MAX 950 MIN 1.8 AC-FT 120300

14018600 WALLA WALLA RIVER BELOW WARM SPRINGS CREEK NEAR TOUCHET, WA

LOCATION.--Lat 46°02'16", long 118°45'55", in SE¼SE¼ sec.35, T.7 N., R.32 E., Walla Walla County, Hydrologic Unit 17070102, at county road bridge, 0.9 mi (1.4 km) downstream from Warm Springs Canyon, 2.5 mi (4.0 km) downstream from gaging station, 3.7 mi (6.0 km) west of Touchet, and at mile 15.7 (25.3 km).

DRAINAGE AREA.--About 1,690 mi² (4,380 km²).

PERIOD OF RECORD.--Water years 1959 to 1971, 1974 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: July 1959 to June 1970.
SEDIMENT RECORDS: October 1962 to June 1970.

REMARKS.--Records collected prior to October 1973, published as 14018500 "near Touchet".

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity, color and specific conductance data for the bimonthly water-quality samples listed below furnished by Washington State Department of Ecology. Coliform analyses for the diel study were performed by the Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)
OCT							
06...	1200	75	300	15.4	36	40	8.1
NOV							
16...	1400	124	225	10.7	22	120	7.0
DEC							
14...	1215	229	290	2.5	17	0	10.3
JAN							
25...	1200	370	155	3.7	0	3	13.7
FEB							
15...	1315	332	195	7.6	6	9	12.0
MAR							
22...	1205	220	105	12.4	6	9	7.6
APR							
19...	1210	170	107	12.7	6	8	9.3
MAY							
17...	1200	77	305	14.0	17	20	8.1
JUN							
21...	1230	22	455	23.4	6	2	--
JUL							
26...	1230	10	370	27.4	6	20	7.0
AUG							
23...	1120	4.2	350	23.1	--	10	10.0
SEP							
20...	0955	44	390	15.7	--	20	8.0
20...	1540	45	390	17.0	--	20	9.4
27...	1145	90	305	15.4	--	15	9.0

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
OCT						
06...	.62	.01	.10	.94	.16	.05
NOV						
16...	.43	.01	.00	.43	.17	.00
DEC						
14...	.90	.01	.04	.26	.18	.14
JAN						
25...	1.1	.02	.11	.35	.19	.09
FEB						
15...	1.0	.02	.07	.33	.19	.15
MAR						
22...	.81	.03	.11	.20	.10	.14
APR						
19...	.44	.01	.11	.35	.14	.09
MAY						
17...	.53	.04	.20	.56	.10	.09
JUN						
21...	.67	.02	.20	1.1	.20	.12
JUL						
26...	.00	.01	.47	2.4	.29	.01
AUG						
23...	.25	.04	.29	1.7	.20	.02
SEP						
20...	--	--	.16	.52	.22	.11
20...	--	--	.15	.54	.22	.11
27...	.51	.01	.11	.50	.23	.09

14018600 WALLA WALLA RIVER BELOW WARM SPRINGS CREEK NEAR TOUCHET, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
SEP											
20...	0955	65	390	8.0	15.7	20	8.8	89	<1000	310	140
20...	1105	65	390	7.9	16.3	--	9.1	93	--	--	--
20...	1200	65	385	7.8	16.4	--	9.1	94	--	--	--
20...	1250	66	385	7.9	16.9	--	9.3	97	--	--	--
20...	1345	66	370	7.9	17.4	--	9.3	98	--	--	--
20...	1540	67	390	8.0	17.8	--	9.6	100	<1000	210	--
20...	1646	67	380	8.0	17.5	20	9.6	99	--	--	--
20...	1725	68	395	8.0	17.4	--	9.3	98	--	--	--
20...	1945	69	380	8.0	16.8	--	9.2	95	<1000	200	--
20...	2155	69	380	7.8	16.8	20	9.2	95	--	--	--
21...	0030	53	390	8.0	16.0	--	9.1	92	--	--	--
21...	0305	56	380	8.1	15.0	--	8.9	89	<1000	310	--
21...	0545	56	360	8.1	14.4	25	8.9	87	--	--	--
21...	0815	55	380	8.1	13.8	--	9.0	87	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
SEP										
20...	0	35	13	27	5.9	193	0	160	3.1	31
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	190	0	156	3.0	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
SEP										
20...	15	.2	32	256	66	.64	.16	.52	.22	.11
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	56	.61	.15	.54	.22	.11
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--

14019200 COLUMBIA RIVER AT MCNARY DAM, NEAR UMATILLA, OR

LOCATION.--Lat 45°56'05", long 119°17'45", in NE¼ sec.10, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070101, in powerhouse forebay between generator units 2 and 3 at McNary Dam, 2.5 mi (4.0 km) northeast of Umatilla, 3.0 mi (4.8 km) upstream from Umatilla River, and at mile 292.0 (469.8 km).

DRAINAGE AREA.--214,000 mi² (554,300 km²), approximately.

PERIOD OF RECORD.--October 1950 to current year. Gage-height records collected at site at Umatilla since 1876 are contained in reports of U.S. Weather Bureau. Prior to October 1966, published as "below McNary Dam."

GAGE.--Water-stage recorder. Datum of gage is at mean sea level (levels by Corps of Engineers). Prior to Oct. 1, 1966, at site 1.2 mi (1.9 km) downstream (tailwater) at datum 240.04 ft (73.164 m) above mean sea level.

REMARKS.--Records computed from power output and flow over spillway at McNary Dam. Considerable regulation by many reservoirs upstream. Diurnal fluctuation cuased by powerplant and gates at McNary Dam since beginning of operation in April 1953. Many diversions for irrigation above station.

COOPERATION.--Daily discharge records furnished by Corps of Engineers. Two discharge measurements made and records reviewed by Geological Survey.

AVERAGE DISCHARGE.--27 years, 185,200 ft³/s (5,245 m³/s), 134,200,000 acre-ft/yr (165 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 818,000 ft³/s (23,200 m³/s) June 2, 1956, elevation, 277.01 ft (84.433 m), at site 1.2 mi (1.9 km) downstream; maximum daily discharge, 798,000 ft³/s (22,600 m³/s) June 2, 1956; minimum daily discharge, 39,500 ft³/s (1,120 m³/s) July 10, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1894, reached an elevation of 284.2 ft (86.62 m), and that of May 31, 1948, reached an elevation of about 280 ft (85.3 m), both at site 1.2 mi (1.9 km) downstream from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 183,000 ft³/s (5,180 m³/s) May 27, maximum forebay elevation, 339.8 ft (103.57 m) Mar. 12; minimum daily discharge, 39,500 ft³/s (1,120 m³/s) July 10; minimum forebay elevation, 337.1 ft (102.75 m) May 13, June 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125000	133000	157000	122000	156000	132000	127000	107000	161000	86000	113000	107000
2	128000	137000	147000	124000	165000	140000	99500	136000	160000	104000	115000	115000
3	112000	127000	119000	162000	174000	137000	71700	160000	175000	63300	109000	101000
4	177000	138000	121000	141000	155000	153000	84300	176000	112000	69200	121000	71000
5	141000	140000	121000	164000	118000	112000	87600	143000	101000	66000	88000	70000
6	145000	114000	132000	168000	96000	88600	95200	150000	97100	93800	72000	110000
7	125000	113000	117000	161000	154000	145000	94900	122000	140000	91900	81500	99300
8	148000	119000	134000	115000	135000	132000	81500	64000	142000	114000	81700	104000
9	131000	119000	125000	111000	131000	132000	80500	130000	138000	63200	112000	107000
10	115000	144000	125000	131000	117000	138000	92400	161000	120000	39500	91500	89200
11	127000	129000	117000	149000	114000	128000	100000	167000	109000	98200	88700	60500
12	144000	137000	118000	157000	86100	118000	99100	159000	87200	103000	113000	104000
13	152000	123000	137000	122000	104000	83200	110000	152000	110000	88300	83600	113000
14	161000	125000	139000	132000	115000	130000	115000	93800	137000	111000	71500	115000
15	143000	129000	138000	123000	122000	118000	115000	107000	112000	117000	106000	110000
16	116000	136000	142000	115000	109000	155000	93600	130000	154000	86900	116000	110000
17	138000	139000	140000	132000	124000	109000	67500	156000	153000	76400	99900	102000
18	157000	130000	109000	125000	118000	130000	96900	146000	114000	95200	110000	71600
19	146000	119000	116000	142000	122000	122000	119000	144000	81000	117000	93400	75300
20	148000	119000	147000	155000	83500	82300	110000	117000	97300	112000	84700	96700
21	131000	116000	144000	128000	104000	113000	113000	119000	134000	112000	68200	102000
22	134000	128000	150000	137000	144000	115000	110000	89000	106000	105000	96700	101000
23	120000	131000	146000	145000	129000	120000	92200	141000	107000	86500	116000	117000
24	110000	148000	128000	176000	124000	133000	83000	163000	125000	65900	101000	106000
25	125000	132000	111000	169000	145000	132000	100000	142000	103000	70600	101000	99100
26	136000	111000	92500	171000	120000	109000	130000	173000	69200	105000	92400	109000
27	142000	129000	119000	161000	93500	81600	120000	183000	122000	105000	79700	115000
28	153000	120000	148000	160000	133000	117000	122000	131000	121000	96900	66600	106000
29	153000	167000	136000	171000	---	132000	104000	88200	99500	115000	104000	115000
30	147000	149000	141000	157000	---	122000	116000	98100	112000	91700	90300	100000
31	89400	---	152000	156000	---	125000	---	151000	---	76300	94000	---
TOTAL	4219400	3901000	4068500	4482000	3491100	3784700	3051700	4229100	3615300	2830600	2961200	3027300
MEAN	136100	130000	131200	144600	124700	122100	101700	136400	120500	91310	95520	100900
MAX	177000	167000	157000	176000	174000	155000	130000	183000	175000	117000	121000	110000
MIN	89400	111000	92500	111000	83500	81600	67500	64000	69200	39500	66600	60500
AC-FT	8369000	7738000	8070000	8890000	6925000	7507000	6053000	8388000	7171000	5614000	5874000	6005000

CAL YR 1976 TOTAL 77234900 MEAN 211000 MAX 414000 MIN 89400 AC-FT 153200000
WTR YR 1977 TOTAL 43661900 MEAN 119600 MAX 183000 MIN 39500 AC-FT 86600000

14019250 COLUMBIA RIVER AT UMATILLA, OR

LOCATION.--Lat 45°55'53", long 119°19'39", in SW¼SW¼ sec.9, T.5 N., R.28 E., Umatilla County, Hydrologic Unit 17070101, near span on upstream side of bridge at Umatilla, and at mile 290.3 (467.4 km).

DRAINAGE AREA.--214,000 mi² (554,300 km²), approximately.

PERIOD OF RECORD.--Water years 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1974 to current year.

INSTRUMENTATION.--Temperature recorder since October 1974.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 22.5°C Aug. 16-17, 1977; minimum, 1.0°C Feb. 7, 1976.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPRATURES: Maximum, 22.5°C Aug. 16-17; minimum, 2.0°C Jan. 12-15.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	*TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	CHEM-ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	FECAL COLI-FORM ,TUM-MF (COL./100 ML)	FECAL STREP-TOCOCCI KF AGAR (COL. PER 100 ML)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)
OCT											
20...	0900	140000	161	8.5	14.5	10.0	6	<1	87	6.2	88
DEC											
02...	0900	147100	187	8.0	7.0	12.2	15	86	81	7.7	120
30...	1000	148000	191	8.2	5.7	12.2	--	82	22	8.7	113
JAN											
27...	1000	160500	187	7.9	2.7	13.5	8	82	21	8.9	110
MAR											
04...	1000	152900	210	8.3	4.2	13.1	12	88	81	6.3	105
24...	0930	132700	186	8.0	5.6	13.5	7	<1	<1	6.6	116
APR											
26...	1600	137000	212	8.5	11.0	12.7	13	<1	88	20	112
MAY											
25...	0900	102200	160	8.6	13.5	--	15	<1	84	11	90
JUL											
01...	1000	86000	162	--	19.3	9.7	0	<1	46	3.8	77
20...	1000	96900	150	8.6	19.0	9.6	0	<1	46	3.3	87
AUG											
31...	1200	94000	162	8.1	19.6	9.0	6	81	<1	5.3	68

* Temperatures taken at water surface.
b Results based upon colony counts outside the ideal range.

DATE	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)
OCT											
20...	.12	35200	0	.20	.03	.25	.45	.02	2	<10	0
DEC											
02...	.16	47700	0	.23	.08	.15	.38	.03	2	<10	0
30...	.15	43000	4	.32	.00	.45	.77	.03	2	<10	0
JAN											
27...	.15	47700	0	.31	.00	.12	.43	.03	1	<10	0
MAR											
04...	.14	43300	0	.18	.00	.50	.68	.01	3	<10	0
24...	.16	41600	0	.18	.02	.30	.48	.02	0	<10	0
APR											
26...	.15	41700	8	.09	.04	.25	.34	.01	1	<10	0
MAY											
25...	.12	44300	8	.00	.06	.71	.71	.05	--	<10	10
JUL											
01...	.10	18000	2	.01	.05	.05	.06	.02	1	<10	10
20...	.12	22800	78	.01	.01	.23	.24	.01	1	<10	10
AUG											
31...	.11	20300	4	.10	.04	.13	.23	.11	0	<10	10

14019250 COLUMBIA RIVER AT UMATILLA, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	CHLOROPHYLL A (UG/L)	CHLOR-A PHYTOPLANKTON CHROMO FLUOROM (UG/L)	CHLOROPHYLL B (UG/L)	CHLOR-B PHYTOPLANKTON CHROMO FLUOROM (UG/L)
OCT											
20...	<10	260	<100	.0	0	30	2.3	9.27	--	3.03	--
DEC											
07...	30	110	100	.0	0	20	1.3	.000	--	.000	--
30...	<10	150	<100	.0	0	30	1.4	--	--	--	--
JAN											
27...	<10	170	<100	.0	0	40	12	--	.027	--	.000
MAR											
04...	<10	200	<100	.0	0	30	1.4	--	--	--	--
24...	<10	220	<100	.0	0	30	1.2	--	.120	--	.000
APR											
26...	20	150	100	.0	0	90	1.0	7.17	--	2.09	--
MAY											
25...	10	180	<100	.0	0	70	1.0	23.0	--	5.32	--
JUL											
01...	10	130	<100	.0	0	60	2.0	7.60	--	.953	--
28...	20	400	<100	.0	0	50	1.0	.455	--	.000	--
AUG											
31...	20	150	<100	.0	0	20	--	--	--	--	--

DATE	TIME	TOTAL CALCIUM (CA) (MG/L)	TOTAL MAGNESIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	OIL AND GREASE (MG/L)
OCT										
20...	0900	--	--	--	--	68	0	11	3.0	0
JAN										
27...	1000	26	6.2	6.0	1.5	67	0	20	3.3	0
APR										
26...	1000	26	5.4	7.3	1.3	66	0	19	4.4	0
JUL										
28...	1000	31	4.7	6.0	1.1	72	0	12	1.9	0

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.0	18.0	18.5	13.0	12.5	12.5	7.5	7.5	7.5	5.5	5.0	5.5
2	18.5	18.0	18.5	12.5	12.5	12.5	7.5	7.5	7.5	5.0	5.0	5.0
3	18.0	17.5	18.0	12.5	12.5	12.5	7.5	7.5	7.5	5.0	4.5	5.0
4	18.0	17.5	17.5	12.5	12.5	12.5	7.5	7.0	7.0	4.5	4.5	4.5
5	17.0	16.5	17.0	13.0	12.5	13.0	7.0	7.0	7.0	4.5	4.0	4.0
6	17.0	16.5	16.5	13.0	12.5	12.5	7.0	7.0	7.0	4.0	4.0	4.0
7	17.0	16.0	16.5	12.5	12.5	12.5	7.0	7.0	7.0	4.0	3.5	3.5
8	17.0	16.0	16.5	12.5	12.5	12.5	7.0	7.0	7.0	3.5	3.5	3.5
9	16.5	16.0	16.5	12.5	12.5	12.5	7.0	7.0	7.0	3.5	3.0	3.0
10	17.0	16.5	17.0	12.5	12.5	12.5	7.5	7.0	7.0	3.0	2.5	3.0
11	17.0	16.5	16.5	12.5	12.5	12.5	7.5	7.0	7.5	2.5	2.5	2.5
12	16.5	16.0	16.5	12.5	12.0	12.5	7.0	7.0	7.0	2.5	2.0	2.0
13	16.5	15.5	16.5	12.0	12.0	12.0	7.0	7.0	7.0	2.0	2.0	2.0
14	17.0	16.0	16.5	12.0	11.5	11.5	7.0	7.0	7.0	2.5	2.0	2.0
15	16.5	16.0	16.0	11.5	11.5	11.5	7.0	6.5	7.0	2.5	2.0	2.5
16	16.0	15.5	16.0	11.5	11.5	11.5	6.5	6.5	6.5	2.5	2.5	2.5
17	16.0	15.5	16.0	11.5	11.0	11.0	6.5	6.5	6.5	2.5	2.5	2.5
18	15.5	15.0	15.0	11.5	11.5	11.5	6.5	6.5	6.5	3.0	2.5	2.5
19	15.0	14.5	15.0	11.5	11.0	11.0	6.5	6.5	6.5	3.0	3.0	3.0
20	14.5	14.0	14.5	11.5	11.5	11.5	6.5	6.0	6.5	3.5	3.0	3.0
21	14.5	14.0	14.0	11.5	11.0	11.0	6.0	6.0	6.0	3.5	3.5	3.5
22	14.5	13.5	14.0	11.0	10.5	10.5	6.0	6.0	6.0	3.5	3.5	3.5
23	14.0	13.5	14.0	10.5	10.0	10.0	6.0	6.0	6.0	3.5	3.5	3.5
24	14.0	13.5	13.5	10.0	10.0	10.0	6.0	6.0	6.0	3.5	3.5	3.5
25	13.5	13.5	13.5	10.0	9.5	9.5	6.0	5.5	5.5	3.5	3.0	3.0
26	14.0	13.0	13.5	9.5	9.0	9.5	6.0	5.5	6.0	3.0	3.0	3.0
27	13.5	12.5	13.0	9.0	9.0	9.0	6.0	5.5	5.5	3.0	3.0	3.0
28	13.0	12.5	12.5	9.0	8.5	8.5	5.5	5.5	5.5	3.0	3.0	3.0
29	13.0	12.5	13.0	8.5	8.5	8.5	5.5	5.5	5.5	3.0	2.5	2.5
30	13.0	13.0	13.0	8.0	7.5	8.0	5.5	5.5	5.5	2.5	2.5	2.5
31	13.0	13.0	13.0	---	---	---	5.5	5.5	5.5	2.5	2.5	2.5
MONTH	19.0	12.5	15.5	13.0	7.5	11.0	7.5	5.5	6.5	5.5	2.0	3.0

14019250 COLUMBIA RIVER AT UMATILLA, OR--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	2.5	2.5	2.5	4.0	4.0	4.0	6.5	6.5	6.5	11.5	11.5	11.5
2	2.5	2.5	2.5	4.0	4.0	4.0	6.5	6.5	6.5	12.0	11.5	11.5
3	2.5	2.5	2.5	4.5	4.0	4.5	7.0	6.5	6.5	12.0	11.5	12.0
4	2.5	2.5	2.5	4.5	4.0	4.0	7.0	6.5	7.0	12.0	12.0	12.0
5	2.5	2.5	2.5	4.0	4.0	4.0	7.5	7.0	7.0	12.0	11.5	11.5
6	2.5	2.5	2.5	4.0	4.0	4.0	7.5	7.0	7.5	11.5	11.0	11.5
7	2.5	2.5	2.5	4.5	4.0	4.5	8.0	7.5	7.5	11.0	11.0	11.0
8	2.5	2.5	2.5	4.5	4.5	4.5	8.5	8.0	8.0	11.0	11.0	11.0
9	2.5	2.5	2.5	5.0	4.5	4.5	8.5	8.0	8.5	11.5	11.0	11.0
10	3.0	2.5	2.5	5.0	5.0	5.0	9.0	8.5	9.0	11.5	11.0	11.5
11	3.0	3.0	3.0	5.0	5.0	5.0	9.5	9.0	9.0	11.5	11.0	11.5
12	3.0	3.0	3.0	5.0	5.0	5.0	9.5	9.0	9.0	12.5	11.5	12.0
13	3.5	3.0	3.5	5.0	4.5	5.0	9.5	9.0	9.0	12.5	12.0	12.0
14	4.0	3.5	3.5	4.5	4.5	4.5	9.5	9.0	9.0	12.0	12.0	12.0
15	4.0	4.0	4.0	4.5	4.5	4.5	9.5	9.0	9.5	12.0	12.0	12.0
16	4.5	4.0	4.5	5.0	4.5	4.5	9.5	9.5	9.5	12.5	12.0	12.0
17	4.5	4.5	4.5	5.0	4.5	5.0	9.5	9.5	9.5	12.0	12.0	12.0
18	4.5	4.0	4.5	5.0	5.0	5.0	9.5	9.5	9.5	12.0	12.0	12.0
19	4.5	4.0	4.0	5.0	5.0	5.0	9.5	9.5	9.5	12.0	12.0	12.0
20	4.5	4.0	4.5	5.0	5.0	5.0	9.5	9.5	9.5	12.0	12.0	12.0
21	4.5	4.5	4.5	5.0	5.0	5.0	9.5	9.5	9.5	12.5	12.0	12.0
22	4.5	4.5	4.5	5.5	5.0	5.0	10.0	9.5	9.5	13.0	12.5	12.5
23	4.5	4.0	4.0	5.5	5.5	5.5	10.0	9.5	10.0	13.0	12.5	13.0
24	4.5	4.0	4.5	5.5	5.5	5.5	10.5	10.0	10.0	13.5	13.0	13.0
25	4.5	4.0	4.0	6.0	5.5	6.0	10.5	10.0	10.0	13.5	13.5	13.5
26	4.5	4.0	4.0	6.0	6.0	6.0	10.5	10.0	10.5	13.5	13.0	13.5
27	4.0	4.0	4.0	6.0	6.0	6.0	11.5	10.5	11.0	13.0	13.0	13.0
28	4.0	4.0	4.0	6.0	6.0	6.0	11.5	11.0	11.0	13.0	13.0	13.0
29	---	---	---	6.0	6.0	6.0	11.5	11.0	11.5	13.0	13.0	13.0
30	---	---	---	6.5	6.0	6.0	11.5	11.5	11.5	13.0	13.0	13.0
31	---	---	---	6.5	6.0	6.5	---	---	---	13.5	13.0	13.0
MONTH	4.5	2.5	3.5	6.5	4.0	5.0	11.5	6.5	9.0	13.5	11.0	12.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	13.5	13.5	13.5	19.5	19.0	19.5	20.5	20.0	20.0	19.0	19.0	19.0
2	14.5	13.5	14.0	19.5	19.0	19.0	20.5	20.0	20.5	19.0	19.0	19.0
3	14.5	14.0	14.0	19.0	19.0	19.0	20.5	20.0	20.0	19.0	19.0	19.0
4	14.0	13.5	14.0	19.0	19.0	19.0	20.5	20.0	20.0	19.0	19.0	19.0
5	14.5	14.0	14.0	19.0	19.0	19.0	21.0	20.5	20.5	19.0	19.0	19.0
6	15.0	14.0	14.5	19.0	18.5	18.5	21.5	20.5	21.0	19.5	19.0	19.0
7	15.0	14.5	14.5	19.0	18.5	19.0	21.5	21.0	21.0	19.5	19.0	19.5
8	15.0	14.0	14.5	19.0	18.5	18.5	21.5	21.0	21.0	19.5	19.0	19.5
9	16.5	15.0	15.5	18.5	18.0	18.5	21.0	20.5	21.0	19.5	19.5	19.5
10	16.5	16.0	16.0	18.5	18.0	18.5	21.5	21.0	21.0	19.5	19.5	19.5
11	16.5	16.5	16.5	18.5	18.5	18.5	21.5	21.0	21.5	19.5	19.5	19.5
12	16.5	16.5	16.5	19.5	18.5	18.5	22.0	21.5	21.5	19.5	19.0	19.0
13	17.5	16.5	16.5	18.5	18.5	18.5	21.5	21.5	21.5	19.0	19.0	19.0
14	17.5	17.0	17.0	19.0	18.5	18.5	21.5	21.0	21.5	19.0	18.5	18.5
15	17.0	16.5	17.0	19.5	19.0	19.0	22.0	21.0	21.5	19.0	18.5	18.5
16	17.5	17.0	17.0	19.5	19.0	19.0	22.5	21.5	22.0	19.0	18.5	19.0
17	17.5	17.0	17.5	19.0	19.0	19.0	22.5	22.0	22.0	18.5	18.5	18.5
18	17.5	17.0	17.5	19.5	19.0	19.0	22.0	22.0	22.0	18.5	18.5	18.5
19	17.5	17.0	17.5	19.5	19.0	19.5	22.0	22.0	22.0	18.5	18.5	18.5
20	18.0	17.0	17.5	19.5	19.0	19.5	22.0	22.0	22.0	18.5	18.0	18.0
21	18.0	17.5	18.0	19.5	19.0	19.0	22.0	21.5	22.0	18.0	18.0	18.0
22	18.5	18.0	18.0	19.0	19.0	19.0	22.0	21.5	21.5	---	---	---
23	18.5	18.0	18.5	19.5	19.0	19.0	22.0	22.0	22.0	---	---	---
24	19.0	18.5	18.5	19.5	19.0	19.5	22.0	21.5	22.0	---	---	---
25	19.0	18.5	18.5	20.0	19.5	20.0	21.5	21.0	21.5	---	---	---
26	19.0	18.5	18.5	20.0	19.5	19.5	21.0	20.5	21.0	---	---	---
27	19.0	18.5	19.0	20.5	19.5	20.0	20.5	20.5	20.5	---	---	---
28	20.0	19.0	19.5	19.5	19.0	19.5	20.5	20.0	20.0	---	---	---
29	20.0	19.0	19.5	20.0	19.5	20.0	20.0	19.5	19.5	---	---	---
30	20.0	19.5	20.0	20.0	20.0	20.0	19.5	19.5	19.5	---	---	---
31	---	---	---	20.0	20.0	20.0	19.0	19.0	19.0	---	---	---
MONTH	20.0	13.5	17.0	20.5	18.0	19.0	22.5	19.0	21.0	19.5	18.0	19.0
YEAR	22.5	2.0	11.5									

14105700 COLUMBIA RIVER AT THE DALLES, OR

LOCATION.--Lat 45°36'27", long 121°10'20", in SW¼SW¼ sec.34, T.2 N., R.13 E., Wasco County, Hydrologic Unit 17070105, Corps of Engineers land, on left bank 0.3 mi (0.5 km) downstream from Mill Creek, 2.6 mi (4.2 km) downstream from The Dalles Dam, and at mile 188.9 (303.9 km).

DRAINAGE AREA.--237,000 mi² (614,000 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1857 to September 1877 (annual maximum only, at Lower Cascades Landing, published in WSP 1318), June 1878 to current year. Published as "near The Dalles" 1936-56.

REVISED RECORDS.--WSP 534: 1920(m). WSP 1094: 1894. WSP 1248: 1866, 1888, 1899, 1909. WSP 1518: 1876(M).

GAGE.--Acoustic velocity meter (AVM) with water-stage and velocity-index recorder. Datum of gage is at mean sea level. See WSP 1738 for history of changes prior to Mar. 16, 1957. Mar. 16, 1957, to Sept. 30, 1968, water-stage recorder at site 0.4 mi (0.6 km) upstream at same datum.

REMARKS.--Water-discharge record fair. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation above station.

AVERAGE DISCHARGE.--99 years, 194,100 ft³/s (5,497 m³/s), 140,600,000 acre-ft/yr (173 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--1858-1977: Maximum discharge, 1,240,000 ft³/s (35,100 m³/s) June 6, 1894, gage height, 106.5 ft (32.46 m).
1878-1977: Minimum discharge, 12,100 ft³/s (343 m³/s) Apr. 16, 1968 (recorded by AVM due to closure of John Day Dam).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 213,000 ft³/s (6,030 m³/s) Jan. 25; maximum gage height, 79.44 ft (24.213 m) June 3; minimum daily discharge, 53,900 ft³/s (1,530 m³/s) July 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135000	135000	170000	112000	156000	126000	126000	103000	168000	76400	105000	95300
2	121000	135000	156000	103000	171000	124000	109000	142000	164000	82900	118000	81900
3	110000	129000	136000	175000	171000	143000	76200	154000	168000	70400	103000	94500
4	176000	139000	84900	147000	142000	124000	100000	151000	105000	72500	126000	81000
5	188000	145000	93900	179000	121000	120000	98000	148000	84500	76900	106000	71300
6	169000	111000	124000	146000	78200	117000	98000	150000	129000	86500	82500	112000
7	143000	116000	123000	178000	142000	134000	91100	128000	141000	82900	78500	124000
8	150000	127000	134000	130000	141000	120000	81500	120000	161000	97000	83900	100000
9	101000	130000	121000	96200	131000	116000	79600	136000	153000	80400	94700	107000
10	97800	145000	121000	131000	121000	127000	71700	137000	148000	53900	88800	75600
11	146000	135000	119000	141000	116000	125000	115000	146000	108000	100000	102000	65600
12	151000	127000	120000	158000	108000	122000	106000	142000	90900	104000	99000	95900
13	164000	124000	149000	136000	77500	125000	115000	134000	131000	96600	79600	105000
14	159000	131000	139000	136000	125000	135000	127000	122000	145000	99400	58300	116000
15	190000	129000	136000	112000	121000	121000	125000	127000	152000	116000	108000	116000
16	130000	132000	139000	107000	125000	175000	97000	143000	156000	65500	117000	113000
17	102000	136000	156000	139000	110000	121000	65600	145000	144000	82300	99000	92600
18	174000	128000	117000	123000	108000	135000	105000	129000	112000	118000	97200	78400
19	175000	122000	105000	127000	111000	128000	102000	105000	83600	110000	107000	109000
20	140000	126000	146000	168000	99000	97600	119000	112000	96400	110000	87300	91900
21	152000	121000	144000	146000	120000	118000	118000	130000	106000	85800	65200	98100
22	160000	134000	158000	132000	117000	114000	110000	131000	108000	107000	106000	95500
23	89100	126000	160000	132000	132000	123000	94500	131000	110000	66700	111000	110000
24	89000	141000	119000	175000	121000	123000	74100	132000	124000	73800	111000	92100
25	125000	130000	117000	213000	146000	117000	117000	170000	107000	92200	89500	91600
26	136000	129000	118000	171000	121000	90000	129000	174000	75500	97100	79900	109000
27	148000	143000	122000	151000	108000	89000	125000	184000	117000	85600	75500	112000
28	156000	118000	136000	161000	134000	109000	127000	130000	96200	92700	55600	112000
29	164000	171000	139000	153000	---	140000	111000	116000	113000	106000	98700	114000
30	131000	183000	147000	136000	---	121000	105000	95900	113000	84700	83500	110000
31	112000	---	162000	198000	---	131000	---	144000	---	73500	88500	---
TOTAL	4383900	3998000	4111800	4512200	3473700	3810600	3118300	4219900	3710100	2746700	2905200	2970300
MEAN	141400	133300	132600	145600	124100	122900	103900	136100	123700	88600	93720	99010
MAX	190000	183000	170000	213000	171000	175000	129000	184000	168000	118000	126000	124000
MIN	89000	111000	84900	96200	77500	89000	65600	95900	75500	53900	55600	65600
AC-FT	8695000	7930000	8156000	8950000	6890000	7558000	6185000	8370000	7359000	5448000	5762000	5892000

CAL YR 1976 TOTAL 78819700 MEAN 215400 MAX 418000 MIN 84900 AC-FT 156300000
WTR YR 1977 TOTAL 43960700 MEAN 120400 MAX 213000 MIN 53900 AC-FT 87200000

14105700 COLUMBIA RIVER AT THE DALLES, OR--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected at The Dalles Dam, 3.2 mi (5.1 km) upstream from gaging station.

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1950 to current year.
WATER TEMPERATURES: December 1950 to September 1969, October 1973 to August 1976.

REMARKS.--No appreciable inflow between sampling point and gaging station except during periods of heavy local runoff.

EXTREMES OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 324 micromhos Dec. 7, 1955; minimum daily, 95 micromhos June 8, 1972.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum observed, 232 micromhos May 13; minimum observed, 136 micromhos July 7, 8.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	CHEM-ICAL OXYGEN DEMAND (LOW LEVEL) (MG/L)	FECAL COLI-FORM .7UM-MF (COL./ 100 ML)	FECAL STREP-TOCOCCI KF AGAR (COL. PER 100 ML)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)
OCT											
18...	1400	177000	170	8.3	16.0	10.0	19	B4	<1	7.0	91
NOV											
30...	1400	182700	186	8.1	9.0	11.6	3	B6	<1	7.2	105
DEC											
28...	1500	141500	191	8.3	5.8	11.5	14	B1	--	8.7	116
JAN											
25...	1400	211300	196	8.0	2.0	14.0	19	<1	B7	8.4	122
MAR											
02...	1300	129600	196	8.5	5.0	13.0	15	B1	<1	7.6	109
22...	1300	113600	188	8.6	5.8	13.4	7	<1	<1	7.1	122
APR											
27...	1200	122800	202	8.4	11.3	11.3	13	B1	<1	6.3	116
MAY											
23...	1330	133100	179	8.6	13.3	--	9	B2	<1	3.8	101
JUN											
30...	1200	112900	146	8.2	19.0	8.7	8	B1	<1	4.7	77
JUL											
26...	1300	97100	144	8.0	20.5	11.3	7	B1	<1	4.4	81
AUG											
31...	0800	88500	156	--	20.7	8.3	28	B12	B15	5.9	77

B Results based upon colony counts outside the ideal range.

DATE	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)
OCT											
18...	.12	43500	11	.14	.00	.47	.61	.04	2	<10	0
NOV											
30...	.14	51800	10	.23	.00	.37	.60	.04	2	<10	0
DEC											
28...	.16	44300	5	.26	.02	.24	.50	.03	1	<10	0
JAN											
25...	.17	69600	4	.30	.01	.07	.37	.02	2	<10	0
MAR											
02...	.15	38100	8	.19	.00	.92	1.1	.01	3	<10	0
22...	.17	37400	0	.12	.02	.22	.34	.00	1	<10	0
APR											
27...	.16	38500	12	.21	.06	.36	.57	.03	2	<10	0
MAY											
23...	.14	36300	8	.01	.04	.56	.57	.05	--	10	320
JUN											
30...	.10	23500	4	.06	.05	.17	.23	.04	0	<10	0
JUL											
26...	.11	21200	3	.03	.01	.42	.45	.03	2	<10	10
AUG											
31...	.10	18400	5	.09	.04	.28	.37	.02	1	<10	10

14105700 COLUMBIA RIVER AT THE DALLES, OR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	CHLORO-PHYLL A (UG/L)	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L)	CHLORO-PHYLL B (UG/L)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L)
OCT											
18...	20	360	100	.2	0	30	2.5	6.16	--	.959	--
NOV											
30...	<10	250	<100	.0	0	20	1.5	11.1	--	10.2	--
DEC											
28...	<10	150	<100	.0	0	40	1.7	--	--	--	--
JAN											
25...	<10	130	<100	.1	0	70	1.4	--	.126	--	.000
MAR											
02...	<10	140	<100	.0	0	40	1.5	5.41	--	.620	--
22...	<10	160	<100	.0	0	30	1.5	--	.300	--	.066
APR											
27...	10	200	100	.0	0	20	1.7	1.95	--	.576	--
MAY											
23...	<10	1100	<100	.1	0	70	1.9	--	--	--	--
JUN											
30...	10	150	<100	.1	0	30	1.8	8.10	--	.486	--
JUL											
26...	40	460	<100	.0	0	40	1.9	4.15	--	.000	--
AUG											
31...	30	180	<100	.0	0	30	1.0	--	--	--	--

DATE	TIME	TOTAL CAL-CIUM (CA) (MG/L)	TOTAL MAG-NE-SIUM (MG) (MG/L)	TOTAL SODIUM (NA) (MG/L)	TOTAL PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	OIL AND GREASE (MG/L)
OCT										
18...	1400	17	4.5	6.4	1.2	69	0	13	2.9	0
JAN										
25...	1400	22	6.4	7.4	1.4	--	0	20	4.2	0
APR										
27...	1200	24	6.8	8.5	1.5	96	0	16	5.0	0
JUL										
26...	1300	18	4.6	4.4	1.1	68	0	11	2.7	0

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	184	171	200	---	185	216	165	140	149	153
2		---	185	172	193	---	189	212	165	140	147	153
3		---	189	174	186	---	191	213	---	140	148	151
4		---	189	183	184	---	190	215	165	138	148	152
5		160	185	183	184	---	189	211	160	139	149	156
6		155	189	183	186	---	194	210	161	137	148	155
7		154	189	186	186	---	194	210	161	136	148	154
8		154	191	191	---	---	191	213	162	136	150	157
9		161	196	192	---	186	194	220	160	137	149	156
10		159	195	188	---	188	190	228	158	138	148	157
11		160	193	190	---	---	186	228	159	137	151	158
12		162	191	180	---	188	186	---	157	138	151	158
13		162	188	188	---	190	185	232	157	137	152	158
14		162	186	177	---	189	186	220	158	138	152	160
15		166	187	189	---	189	188	219	155	138	151	159
16		170	188	180	---	190	192	209	154	138	153	159
17		170	190	181	---	192	192	202	153	138	152	158
18		170	192	186	---	194	192	203	154	138	154	158
19		175	188	188	---	189	191	194	151	140	155	158
20		---	189	191	---	194	193	189	150	140	154	158
21		---	---	195	---	191	193	186	152	141	154	159
22		187	199	190	---	192	195	183	---	142	153	---
23		186	202	190	---	189	200	180	150	144	153	---
24		183	203	190	---	187	199	178	151	143	153	---
25		178	197	193	---	184	202	176	149	143	154	---
26		176	196	---	---	188	216	173	148	144	153	---
27		176	193	198	---	192	211	171	146	144	154	---
28		181	191	197	---	190	213	170	145	145	156	---
29		180	189	201	---	194	209	168	143	146	154	---
30		184	186	198	---	192	213	166	142	146	153	---
31		---	171	202	---	192	---	166	---	147	152	---
MEAN		170	190	188	188	190	195	199	155	140	152	157

WTR YR 1977 MEAN 174 MAX 232 MIN 136

14107000 KLICKITAT RIVER ABOVE WEST FORK NEAR GLENWOOD, WA

LOCATION.--Lat 46°15'54", long 121°14'38", in NW¼SW¼ sec.18, T.9 N., R.13 E., Yakima County, Hydrologic Unit 17070106, Yakima Indian reservation, on right bank 0.8 mi (1.3 km) upstream from Swamp Creek, 1.9 mi (3.1 km) upstream from West Fork, 17.0 mi (27.4 km) north of Glenwood, and at mile 64.7 (104.1 km).

DRAINAGE AREA.--151 mi² (391 km²).

PERIOD OF RECORD.--October 1944 to September 1977 (discontinued). Monthly discharge only for some periods, published in WSP 1318.

GAGE.--Water-stage recorder. Altitude of gage is 2,720 ft (829 m), from river-profile map.

REMARKS.--Records good. No regulation or diversion above station.

AVERAGE DISCHARGE.--33 years, 330 ft³/s (9.346 m³/s) 29.68 in/yr (754 mm/yr), 239,100 acre-ft/yr (295 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,280 ft³/s (92.9 m³/s) May 27, 1948, gage height, 4.28 ft (1.305 m); minimum, 4.4 ft³/s (0.12 m³/s) Feb. 1, 1957 (result of freezeup, discharge measurement); minimum gage height, 0.49 ft (0.149) Dec. 20, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 900 ft³/s (25.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 5	0800	(a)		*2.21	0.674	Apr. 25	2400	*4.56	12.9	1.72	0.524

a Result of freezeup.

Minimum discharge, 47 ft³/s (1.33 m³/s) Dec. 20; gage height, 0.49 ft (0.149 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	138	84	75	88	109	99	340	239	114	68	81
2	103	123	86	74	85	103	97	374	241	110	66	75
3	106	118	86	72	82	104	103	370	222	108	65	75
4	106	114	88	70	84	98	131	303	298	105	65	96
5	103	112	90	68	84	99	157	261	338	103	111	124
6	103	110	92	66	87	101	187	235	360	100	92	97
7	101	108	110	68	85	110	233	231	388	99	80	86
8	101	108	113	70	86	119	278	226	378	96	77	81
9	99	108	106	68	88	111	233	214	282	94	69	79
10	99	106	96	70	105	101	206	230	244	94	66	78
11	99	106	96	70	128	98	198	225	239	92	66	76
12	96	103	94	75	135	101	202	213	231	94	64	74
13	96	99	94	90	149	96	209	206	233	94	64	72
14	94	103	92	95	121	92	191	206	229	92	62	72
15	94	108	94	100	116	92	193	198	216	92	62	72
16	94	121	99	110	118	91	208	192	205	90	62	72
17	92	117	96	137	120	90	183	185	198	87	61	73
18	92	130	99	185	122	90	175	184	205	87	61	79
19	92	113	87	213	116	90	166	180	201	85	61	86
20	94	110	76	148	115	88	166	186	199	83	61	88
21	94	110	76	134	119	88	168	202	179	81	61	111
22	94	106	80	124	112	93	184	216	175	79	61	100
23	92	106	84	103	103	102	225	225	164	77	59	96
24	96	106	80	99	103	96	287	[illegible]	151	74	61	115
25	126	116	86	90	105	92	390	195	148	81	64	119
26	128	94	100	90	103	95	403	207	141	92	72	123
27	110	83	110	95	106	113	336	196	135	85	68	112
28	106	75	90	90	119	99	312	190	128	79	65	116
29	106	80	88	86	---	92	327	180	125	74	76	113
30	103	84	86	86	---	92	333	172	119	72	135	110
31	110	---	82	90	---	96	---	198	---	70	99	---
TOTAL	3132	3215	2840	3011	2984	3041	6580	6940	6611	2783	2204	2751
MEAN	101	107	91.6	97.1	107	98.1	219	224	220	89.8	71.1	91.7
MAX	128	138	113	213	149	119	403	374	388	114	135	124
MIN	92	75	76	66	82	88	97	172	119	70	59	72
AC-FT	6210	6380	5630	5970	5920	6030	13050	13770	13110	5520	4370	5460

CAL YR 1976 TOTAL 116086 MEAN 317 MAX 1400 MIN 75 AC-FT 230300
WTR YR 1977 TOTAL 46092 MEAN 126 MAX 403 MIN 59 AC-FT 91420

14112500 LITTLE KLICKITAT RIVER NEAR WAHKIACUS, WA

LOCATION.--Lat 45°50'34", long 121°03'27", in SW¼SE¼ sec.9, T.4 N., R.14 E., Klickitat County, Hydrologic Unit 17070106, on right bank 450 ft (137 m) upstream from bridge on State Highway 142, 1.1 mi (1.8 km) downstream from Bowman Creek, 2.3 mi (3.7 km) northeast of Wahkiacus and at mile 0.4 (0.6 km).

DRAINAGE AREA.--280 mi^2 (725 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.-- November 1944 to current year. Monthly discharge only for some periods, published in WSP's 1318 and 1935.

REVISED RECORDS.--WSP 1248: Drainage area. WSP 1348: 1945(M), 1946, 1947(M), 1948.

GAGE.--Water-stage recorder. Datum of gage is 570.34 ft (173.840 m) above mean sea level (river-profile survey). Prior to Dec. 29, 1950, nonrecording gage and crest-stage indicator and Dec. 29, 1950 to Dec. 23, 1964, water-stage recorder at present site at datum 5.86 ft (1.786 m) higher. Dec. 24, 1964 to May 30, 1975, water-stage recorder at site 500 ft (152 m) downstream at present datum.

REMARKS.--Records fair. Diversions above station for irrigation of 600 acres (2.4 km^2). No regulation.

AVERAGE DISCHARGE.--32 years (water years 1946-77), 177 ft^3/s (5.013 m^3/s), 128,200 acre-ft/yr (158 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft^3/s (496 m^3/s) Jan. 15, 1974, gage height, 17.58 ft (5.358 m), from rating curve extended above 2,600 ft^3/s (73.6 m^3/s) on basis of slope-area measurement at gage height 17.51 ft (5.337 m); minimum, 6.4 ft^3/s (0.18 m^3/s) July 23, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharge above base of 1,200 ft^3/s (34.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Jan. 14	1315		(a)	*8.14	2.481	May 10	2145	*76	2.15	7.85	2.393

a Backwater from ice.

Minimum discharge, 6.4 ft^3/s (0.18 m^3/s) July 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	54	45	43	41	58	39	23	31	7.7	13	20
2	38	55	45	42	41	49	37	25	32	7.9	10	18
3	38	51	47	41	41	52	35	26	30	9.2	9.9	18
4	38	49	48	41	40	49	35	30	30	11	9.4	19
5	38	47	48	38	39	46	35	29	31	11	7.3	19
6	38	48	50	37	38	45	36	27	29	9.9	7.1	19
7	40	49	50	35	43	46	35	27	25	8.9	9.2	18
8	41	47	51	33	45	52	34	36	23	8.7	10	17
9	40	49	52	33	45	53	34	32	24	7.8	9.5	17
10	38	49	51	35	49	49	33	44	22	7.5	9.3	15
11	38	49	49	37	52	45	32	60	21	8.7	8.9	15
12	38	50	48	40	52	45	29	41	19	7.6	8.9	15
13	40	50	49	43	52	45	28	35	20	8.1	9.8	13
14	40	50	48	47	48	44	28	32	19	8.5	11	14
15	40	51	48	50	47	44	27	32	18	7.9	9.8	14
16	42	55	49	54	46	42	26	32	19	7.4	10	14
17	43	55	49	58	44	42	26	30	18	7.6	11	16
18	43	52	49	53	45	42	27	29	17	9.2	11	17
19	45	52	47	59	45	42	26	27	16	9.5	10	22
20	46	52	55	49	44	42	25	25	17	9.1	8.8	24
21	46	52	44	45	44	41	24	25	15	7.6	8.5	23
22	46	52	45	45	46	41	25	24	14	7.1	8.0	23
23	46	50	45	45	43	41	25	24	14	6.5	8.5	24
24	51	50	45	43	43	41	25	26	13	7.1	9.7	29
25	51	52	46	38	43	41	25	26	13	8.4	12	31
26	52	52	52	38	44	40	25	24	13	11	17	32
27	50	50	57	40	44	40	25	24	13	13	18	32
28	50	46	51	40	61	41	23	25	12	12	16	36
29	50	43	50	43	---	41	23	25	12	13	17	36
30	50	45	49	40	---	40	22	25	9.6	14	24	33
31	51	---	44	39	---	40	---	25	---	14	22	---
TOTAL	1345	1506	1506	1324	1265	1379	869	915	589.6	286.9	354.6	663
MEAN	43.4	50.2	48.6	42.7	45.2	44.5	29.0	29.5	19.7	9.25	11.4	21.4
MAX	52	55	57	59	61	58	39	60	32	14	24	36
MIN	38	43	44	33	38	40	22	23	9.6	6.5	7.1	13
AC-FT	2670	2990	2990	2630	2510	2740	1720	1810	1170	569	703	1280

CAL YR 1976 TOTAL 54468.0 MEAN 149 MAX 830 MIN 27 AC-FT 108000
WTR YR 1977 TOTAL 11983.1 MEAN 32.8 MAX 61 MIN 6.5 AC-FT 23770

14112500 LITTLE KLICKITAT RIVER NEAR WAHKIACUS, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples taken at bridge 450 ft (137 m) downstream from gaging station.

PERIOD OF RECORD.--October 1976 to September 1977 (discontinued).

COOPERATION.--Temperature, dissolved, oxygen, pH, turbidity, color and specific conductance data furnished by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTAN- TANEOUS DIS- CHARGE (CFS)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)	COLOR (PLAT- INUM- COBALT UNITS)	TUR- BID- ITY (JTU)	DIS- SOLVED OXYGEN (MG/L)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)
OCT												
05...	1435	38	121	8.6	11.9	--	4	12.5	46	0	9.0	5.8
19...	1500	46	135	8.5	6.8	25	5	13.0	51	0	11	5.8
NOV												
03...	1420	52	133	8.7	11.3	50	4	11.4	54	0	11	6.5
17...	1345	55	135	8.2	9.5	29	4	11.9	53	0	11	6.3
DEC												
08...	1500	52	139	8.1	5.5	42	3	12.7	52	0	9.9	6.6
15...	1350	49	140	8.2	4.9	21	5	13.4	49	0	9.9	6.0
JAN												
05...	1410	45	161	8.1	.3	13	2	15.0	58	0	12	6.9
19...	1430	59	132	8.1	4.1	29	5	12.7	45	0	9.1	5.4
FEB												
09...	1430	42	138	8.3	4.1	17	5	12.6	50	0	10	6.1
16...	1350	47	130	8.2	7.1	38	6	12.8	49	0	9.8	6.0
MAR												
09...	1425	54	128	8.2	7.6	25	5	11.9	51	0	10	6.4
23...	1315	38	121	8.6	9.8	25	4	12.7	44	0	9.0	5.3
APR												
06...	1335	35	121	8.8	15.3	21	4	11.4	46	0	9.5	5.5
20...	1400	25	121	9.0	13.3	33	4	12.2	52	0	11	6.0
MAY												
04...	1300	30	132	8.6	11.6	29	5	12.0	53	0	11	6.1
18...	1300	28	130	8.6	15.6	33	3	11.7	56	0	12	6.2
JUN												
08...	1300	24	130	9.0	20.5	25	2	11.2	59	0	12	7.0
22...	1335	14	145	9.0	23.7	46	1	11.6	58	0	11	7.5
JUL												
13...	1335	8.1	150	8.9	22.7	29	3	12.3	63	0	13	7.5
27...	1510	13	170	9.4	27.5	29	2	12.6	63	0	13	7.3
AUG												
10...	1350	8.5	161	9.2	27.0	3	2	13.2	65	0	14	7.2
24...	1355	11	161	8.7	20.6	33	4	12.7	62	0	13	7.1
SEP												
14...	1345	14	145	9.1	17.8	33	3	12.4	62	0	13	7.2
29...	1330	37	130	8.4	13.2	25	3	11.8	56	0	12	6.3

DATE	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	CAR- BONATE (CO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)
OCT												
05...	5.6	1.6	75	0	62	.3	1.6	1.6	.09	.04	.09	.04
19...	5.6	1.5	78	0	64	.4	1.3	1.5	.24	.04	.12	.09
NOV												
03...	5.8	1.7	70	0	57	.2	4.1	1.4	.14	.04	.12	.09
17...	5.9	1.9	70	0	57	.7	12	1.7	.22	.04	.13	.08
DEC												
08...	6.6	1.7	77	0	63	1.0	2.7	1.7	.43	.04	.12	.10
15...	6.0	1.5	76	0	62	.8	4.5	1.7	.45	.03	.13	.09
JAN												
05...	6.5	1.6	83	0	68	1.1	3.6	1.9	.57	.08	.13	.06
19...	5.6	1.5	71	0	58	.9	3.1	1.6	.41	.06	.12	.09
FEB												
09...	5.9	2.2	73	0	60	.6	4.2	1.9	.52	.05	.14	.11
16...	5.9	1.6	72	0	59	.7	3.0	1.0	.47	.08	.14	.12
MAR												
09...	5.9	1.5	73	0	60	.7	6.7	1.5	.33	.05	.12	.07
23...	5.4	1.5	70	0	57	.3	1.6	1.9	.21	.10	.14	.09
APR												
06...	5.4	1.6	67	0	55	.2	6.3	3.0	.38	.09	.18	.13
20...	6.0	1.7	74	0	61	.1	5.0	1.7	.57	.08	.15	.11
MAY												
04...	6.4	1.7	75	0	62	.3	2.7	2.0	.12	.10	.16	.11
18...	6.3	1.6	75	0	62	.3	2.4	1.7	.01	.07	.11	.04
JUN												
08...	6.4	1.7	80	0	66	.1	2.4	1.4	.17	.12	.14	.08
22...	7.1	1.8	81	0	66	.1	.9	2.0	.01	.09	.16	.11
JUL												
13...	7.6	2.4	91	0	75	.2	1.3	2.2	.04	.10	.12	.07
27...	7.3	2.1	83	6	78	.1	1.8	2.2	.01	.10	.11	.07
AUG												
10...	8.2	2.2	89	0	73	.1	1.1	2.1	.04	.09	.11	.08
24...	8.2	2.1	91	5	83	.3	2.0	2.4	.01	.05	.09	.05
SEP												
14...	6.6	2.0	86	1	72	.1	4.4	2.1	.07	.05	.10	.08
29...	6.1	1.9	75	0	62	.5	1.5	1.9	.15	.08	.11	.06

14113000 KLICKITAT RIVER NEAR PITT, WA
(National Stream Quality Accounting Network Station)

LOCATION.--Lat 45°45'24", long 121°12'32", in SW¼ sec.8, T.3 N., R.13 E., Klickitat County, Hydrologic Unit 17070106, on left bank 2.8 mi (4.5 km) south of Pitt, 4.8 mi (7.7 km) southwest of Klickitat, 5.3 mi (8.5 km) upstream from Silvias Creek, and at mile 7.0 (11.3 km).

DRAINAGE AREA.--1,297 mi² (3,359 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1909 to January 1912, October 1928 to current year. Published as "at Klickitat" 1909-12 and as "at Pitt" 1928-35.

REVISED RECORDS.--WSP 1348: 1910(M), 1929-33(M), 1934, 1935-38(M), 1940(M), 1942-43(M), 1946(M), 1948(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.9 ft (88.06 m) above mean sea level (river-profile survey). July 3, 1909, to Jan. 31, 1912, nonrecording gage at site 7 mi (11 km) upstream at different datum. Oct. 1, 1928, to Sept. 30, 1935, nonrecording gage at site 3.5 mi (5.6 km) upstream at different datum.

REMARKS.--Water-discharge records excellent. Several small diversions above station for irrigation of about 7,500 acres (30 km²) mostly in vicinity of Glenwood. The largest of these is Hellroaring Irrigation Canal with a maximum flow of 74.5 ft³/s (2.11 m³/s) Aug. 13, 1974, which at times diverts the entire flow of Hellroaring Creek (tributary to Big Muddy Creek). No regulation.

AVERAGE DISCHARGE.--51 years (water years 1910-11, 1929-77), 1,618 ft³/s (45.82 m³/s), 1,172,000 acre-ft/yr (1,450 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,400 ft³/s (1,340 m³/s) Jan. 15, 1974, gage height, 17.12 ft (5.218 m) from high-water mark in well, from rating curve extended above 13,000 ft³/s (368 m³/s) on basis of slope-area measurement at gage height 14.34 ft (4.371 m); minimum, 445 ft³/s (12.5 m³/s) Dec. 17, 1964, gage height, 3.62 ft (1.103 m).

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 5	0315	*1,240	35.1	*4.86	1.481

Minimum discharge, 551 ft³/s (15.6 m³/s) July 30, gage height, 3.95 ft (1.204 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	880	928	782	726	740	789	719	1080	992	663	565	593
2	880	880	817	740	726	754	712	1110	968	663	621	586
3	859	859	810	747	719	761	712	1160	904	635	614	600
4	859	852	803	719	705	740	740	1130	1100	621	621	733
5	838	845	789	691	712	733	782	1030	1190	614	628	936
6	831	838	782	677	712	726	824	952	1170	607	635	740
7	831	838	796	744	712	754	866	912	1150	593	600	684
8	824	838	817	830	712	831	960	920	1180	586	600	656
9	831	838	810	720	712	838	952	873	1070	593	600	635
10	831	831	796	740	733	803	888	896	960	593	614	635
11	824	831	789	760	789	775	859	968	896	600	614	628
12	824	824	782	775	768	768	859	896	866	607	628	628
13	852	824	782	775	824	754	866	866	845	579	642	621
14	852	824	775	761	782	740	852	852	852	593	656	621
15	845	838	775	747	761	733	831	852	831	593	628	600
16	838	866	782	754	754	726	859	838	810	600	621	590
17	831	866	782	775	754	719	824	824	789	614	635	600
18	824	873	782	845	754	719	803	810	789	600	649	650
19	824	852	775	1000	747	712	775	810	789	586	642	700
20	824	838	747	852	740	712	761	803	789	586	621	750
21	831	831	754	810	761	705	761	817	754	593	670	820
22	831	824	775	789	768	712	775	859	747	614	663	760
23	831	817	775	768	747	719	810	888	740	607	621	750
24	831	817	747	747	733	719	873	896	719	628	614	800
25	873	824	754	733	726	712	1010	859	719	628	593	850
26	896	817	817	733	726	705	1110	852	712	670	593	700
27	859	761	866	733	733	747	1080	859	705	642	565	636
28	845	747	810	726	810	740	1030	838	677	649	558	656
29	838	789	789	733	---	726	1020	824	677	621	635	651
30	838	789	782	719	---	712	1060	803	677	586	698	636
31	852	---	747	719	---	712	---	831	---	600	684	---
TOTAL	26127	24999	24389	23588	20860	22996	25973	27908	26067	18964	19328	20445
MEAN	843	833	787	761	745	742	866	900	869	612	623	682
MAX	896	928	866	1000	824	838	1110	1160	1190	670	698	936
MIN	824	747	747	677	705	705	712	803	677	579	558	586
AC-FT	51820	49590	48380	46790	41380	45610	51520	55360	51700	37620	38340	40550

CAL YR 1976 TOTAL 610982 MEAN 1669 MAX 4100 MIN 747 AC-FT 1212000
WTR YR 1977 TOTAL 281644 MEAN 772 MAX 1190 MIN 558 AC-FT 558600

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER-QUALITY RECORDS

LOCATION.--At footbridge 250 ft (76 m) upstream from gaging station.

PERIOD OF RECORD.--Water years 1950-70, 1973, 1975 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1950 to September 1970.

COOPERATION.--Temperature, dissolved oxygen, pH, turbidity and specific conductance for half of the water-quality samples listed below furnished by Washington State Department of Ecology. For the diel study, the coliform analyses were performed by Washington State Department of Ecology.

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM .7UM-MF (COL./100 ML)	STREP-TOCOCCI (COL-ONIES PER 100 ML)
OCT										
05...	1410	831	85	7.5	10.9	3	--	--	--	--
22...	0930	831	73	7.3	5.0	1	47	8	--	7
NOV										
03...	1350	859	87	8.1	9.6	10	--	--	--	--
17...	1005	873	75	8.1	7.6	2	42	--	15	--
DEC										
14...	0915	782	74	7.3	2.7	2	55	--	16	--
15...	1330	782	94	7.8	5.5	2	--	--	--	--
JAN										
13...	1105	766	72	7.6	2.2	2	--	--	--	--
19...	1405	1030	85	7.6	4.9	6	--	--	--	--
FEB										
10...	0830	719	71	7.2	4.9	2	36	--	6	--
16...	1310	754	93	7.8	6.2	4	--	--	--	--
MAR										
16...	1000	740	72	7.6	4.8	1	60	--	B6	--
23...	1240	726	85	8.0	9.0	5	--	--	--	--
APR										
13...	1130	866	66	7.0	10.0	1	42	--	6	--
20...	1335	768	88	8.1	10.6	2	--	--	--	--
MAY										
03...	1030	1160	72	7.6	9.9	1	46	--	6	--
18...	1235	817	89	7.8	12.7	1	--	--	--	--
JUN										
08...	1030	1140	70	--	14.6	6	110	--	18	--
22...	1305	754	79	8.1	10.7	1	--	--	--	--
JUL										
06...	1040	687	68	7.7	12.3	2	120	--	5	--
27...	1415	656	85	8.6	20.5	15	--	--	--	--
AUG										
04...	0845	663	72	7.9	17.7	15	210	--	18	--
16...	0715	686	76	7.3	17.3	15	<100	--	B15	--
26...	1315	635	90	7.2	16.2	15	--	--	--	--
SEP										
13...	1100	662	59	7.7	13.3	15	67	--	9	--
14...	1310	662	87	8.1	14.5	15	--	--	--	--
20...	1300	649	93	7.5	11.5	8	--	--	--	--

B Results based upon colony counts outside the ideal range.

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	FECAL STREP- TOCOCCI KF AGAR (COL. PER 100 ML)	HARD- NESS (CA,MG) (MG/L)	NON- CAR- BONATE HARD- NESS (MG/L)	DIS- SOLVED CAL- CIUM (CA) (MG/L)	DIS- SOLVED MAG- NE- SIUM (MG) (MG/L)	DIS- SOLVED SODIUM (NA) (MG/L)	DIS- SOLVED PO- TAS- SIUM (K) (MG/L)	BICAR- BONATE (HCO3) (MG/L)	ALKA- LINITY AS CACO3 (MG/L)
OCT									
05...	--	--	--	--	--	--	--	--	--
22...	--	31	0	7.0	3.4	4.3	1.6	46	38
NOV									
03...	--	--	--	--	--	--	--	--	--
17...	15	31	0	6.5	3.6	3.9	1.6	50	41
DEC									
14...	78	32	0	6.5	3.8	4.3	1.5	40	33
15...	--	--	--	--	--	--	--	--	--
JAN									
13...	--	36	0	7.4	4.2	4.4	1.5	52	43
19...	--	--	--	--	--	--	--	--	--
FEB									
10...	42	32	0	6.9	3.5	4.3	1.5	52	43
16...	--	--	--	--	--	--	--	--	--
MAR									
16...	63	34	0	6.9	4.1	4.4	1.5	48	39
23...	--	--	--	--	--	--	--	--	--
APR									
13...	37	31	0	6.5	3.5	3.9	1.4	44	36
20...	--	--	--	--	--	--	--	--	--
MAY									
03...	72	26	0	5.8	2.7	3.3	1.2	35	29
18...	--	--	--	--	--	--	--	--	--
JUN									
08...	29	24	0	5.8	2.4	3.4	1.3	32	26
22...	--	--	--	--	--	--	--	--	--
JUL									
06...	3	32	0	7.0	3.5	4.1	1.5	46	38
27...	--	--	--	--	--	--	--	--	--
AUG									
04...	34	31	0	7.0	3.2	4.1	1.6	46	38
16...	--	37	0	8.9	3.7	4.4	1.6	47	39
24...	--	--	--	--	--	--	--	--	--
SEP									
13...	100	36	0	8.8	3.3	4.3	1.7	46	38
14...	--	--	--	--	--	--	--	--	--
28...	--	--	--	--	--	--	--	--	--

DATE	CARBON DIOXIDE (CO2) (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	TOTAL NON- FILT- RABLE RESIDUE (MG/L)	TOTAL NITRATE (N) (MG/L)
OCT									
05...	--	--	--	--	--	--	--	--	.00
22...	3.7	2.4	.6	.1	28	57	70	0	.00
NOV									
03...	--	--	--	--	--	--	--	--	.01
17...	.6	1.0	1.2	.1	27	67	70	0	.03
DEC									
14...	3.2	6.7	.8	.1	30	65	73	19	.07
15...	--	--	--	--	--	--	--	--	.07
JAN									
13...	3.3	2.6	.8	.1	30	72	77	0	.10
19...	--	--	--	--	--	--	--	--	.07
FEB									
10...	5.2	3.3	.9	.1	30	63	76	0	.07
16...	--	--	--	--	--	--	--	--	.06
MAR									
16...	3.1	3.9	1.1	.1	28	76	76	0	.06
23...	--	--	--	--	--	--	--	--	.10
APR									
13...	7.0	3.0	1.0	.1	27	70	68	2	.01
20...	--	--	--	--	--	--	--	--	.00
MAY									
03...	2.2	2.2	.8	.1	22	56	55	9	.01
18...	--	--	--	--	--	--	--	--	.01
JUN									
08...	--	5.4	.7	.1	21	54	56	12	.02
22...	--	--	--	--	--	--	--	--	.00
JUL									
06...	1.5	3.3	1.0	.1	27	61	70	0	.09
27...	--	--	--	--	--	--	--	--	.00
AUG									
04...	.9	1.8	.7	.1	25	64	66	--	.00
16...	3.0	1.9	1.0	.1	28	--	73	--	--
24...	--	--	--	--	--	--	--	--	.00
SEP									
13...	1.5	4.1	.9	.1	29	57	75	10	.40
14...	--	--	--	--	--	--	--	--	.00
28...	--	--	--	--	--	--	--	--	.01

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TOTAL NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT									
05...	.00	--	.02	.09	.04	.01	--	--	--
22...	.00	.00	.03	.09	.04	.03	5	11	--
NOV									
03...	.00	--	.03	.08	.05	.03	--	--	--
17...	.00	.03	.02	.09	.06	.04	--	--	--
DEC									
14...	.00	.07	.01	.08	.05	.04	2	4.2	--
15...	.00	--	.02	.06	.04	.03	--	--	--
JAN									
13...	.00	.10	.03	.07	.05	.04	30	62	--
19...	.00	--	.05	.10	.08	.03	--	--	--
FEB									
10...	.00	.07	.04	.10	.05	.04	3	5.8	--
16...	.01	--	.05	.25	.05	.05	--	--	--
MAR									
16...	.00	.06	.04	.11	.05	.04	1	2.0	54
23...	.00	--	.09	.29	.05	.04	--	--	--
APR									
13...	.00	.01	.02	.26	.04	.04	5	12	96
20...	.00	--	.02	.16	.04	.03	--	--	--
MAY									
03...	.01	.02	.25	.44	.04	.02	13	41	73
10...	.00	--	.02	.19	.05	.01	--	--	--
JUN									
08...	.00	.02	.10	.73	.06	.03	11	34	87
22...	.00	--	.04	.17	.05	.02	--	--	--
JUL									
06...	.00	.09	.02	.17	.04	.03	6	6.6	76
27...	.01	--	.12	.12	.09	.02	--	--	--
AUG									
04...	.01	.01	.07	.25	.09	.04	36	64	95
16...	--	.03	.12	.19	.14	.04	--	--	--
24...	.01	--	.05	.05	.08	.02	--	--	--
SEP									
13...	.01	.49	.15	.53	.15	.09	29	50	98
14...	.01	--	.05	.12	.07	.03	--	--	--
28...	.00	--	.05	.15	.05	.01	--	--	--

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
OCT												
22...	0930	0	0	<10	1	0	0	<50	0	<10	0	120
JAN												
13...	1105	1	1	<10	0	0	10	<50	0	10	0	160
APR												
13...	1130	0	0	10	0	0	0	<50	2	<10	1	720
JUL												
06...	1040	0	0	<10	1	10	10	<50	3	10	2	120

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	TOTAL ORGANIC CARBON (C) (MG/L)
OCT												
22...	60	<100	7	10	0	.0	.0	0	0	10	0	.9
JAN												
13...	90	<100	6	10	0	.1	.1	0	0	20	0	2.0
APR												
13...	80	<100	6	10	0	.0	.0	0	0	20	0	1.0
JUL												
06...	50	<100	8	0	0	.0	.0	0	0	20	0	5.0

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM, .7UM-MF (COL./100 ML)	HARDNESS (CA,MG) (MG/L)
AUG											
16...	0715	684	76	7.3	17.3	15	9.3	97	--	--	37
16...	1320	621	71	7.5	19.2	--	10.1	110	--	--	--
16...	1630	593	71	7.7	20.8	15	9.6	106	<100	B15	--
16...	2045	579	73	7.3	21.0	--	8.7	98	--	--	--
16...	2330	579	74	7.3	20.2	--	8.6	96	--	--	--
17...	0150	621	78	7.4	19.5	--	9.1	99	--	--	--
17...	0410	691	80	7.3	18.6	15	9.0	97	--	--	--
17...	0900	670	82	7.5	17.4	--	9.5	100	--	--	--

B Results based upon colony counts outside the ideal range.

DATE	NONCARBONATE HARDNESS (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
AUG										
16...	0	8.9	3.7	4.4	1.6	47	0	39	3.0	1.9
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	43	0	35	1.4	--
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	SUSPENDED SOLIDS (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
AUG										
16...	1.0	.1	28	73	63	.03	.12	.19	.14	.06
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	53	.02	.14	.18	.15	.06
16...	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--
17...	--	--	--	--	--	--	--	--	--	--

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE TIME	OCT 22,76 0930		DEC 14,76 0915		JAN 13,77 1105		FEB 10,77 0830		MAY 3,77 1030	
TOTAL CELLS/ML	640		130		92		65		260	
DIVERSITY: DIVISION	1.5		0.6		1.0		0.0		0.9	
.CLASS	1.5		0.6		1.0		0.0		0.9	
..ORDER	1.6		0.9		1.3		0.0		0.9	
...FAMILY	2.7		2.0		2.6		1.9		2.0	
....GENUS	2.8		3.1		2.7		2.3		0.0	
ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	--	-
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	36#	39	--	-	--	-
...OOCYSTACEAE										
....CLOSTERIOPSIS	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	--	-	--	-	--	-
..ULOTHRICHALES										
...ULOTHRICHACEAE										
....ULOTHRIX	230#	37	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..PENNALES										
...NAVICULACEAE										
....ENTOMONEIS	--	-	*	0	--	-	--	-	--	-
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	6	1	--	-	--	-	--	-	--	-
....MELOSIRA	--	-	6	5	7	7	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	17	3	9	7	7	7	9	13	12	5
....COCCONEIS	12	2	9	7	*	0	22#	33	6	2
....RHOICOSPHENIA	12	2	--	-	*	0	--	-	*	0
...CYMBELLACEAE										
....CYMBELLA	64	10	34#	26	13	14	9	13	16	6
....EPITHEMIA	--	-	--	-	--	-	--	-	--	-
....RHOPALODIA	--	-	3	2	--	-	--	-	--	-
...DIATOMACEAE										
....DIATOMA	41	6	3	2	*	0	6	7	*	0
...FRAGILARIACEAE										
....FRAGILARIA	--	-	--	-	7	7	--	-	--	-
....HANNAEA	--	-	--	-	--	-	--	-	*	0
....SYNEDRA	17	3	3	2	3	4	--	-	*	0
...GOMPHONEMATACEAE										
....GOMPHONEIS	--	-	--	-	--	-	--	-	--	-
....GOMPHONEMA	47	7	9	7	5	6	6	7	*	0
...NAVICULACEAE										
....AMPHIPLEURA	--	-	--	-	--	-	--	-	--	-
....DIPLONEIS	--	-	--	-	--	-	--	-	--	-
....FRUSTULIA	--	-	3	2	--	-	--	-	--	-
....NAVICULA	12	2	20#	15	7	7	--	-	6	2
...NITZSCHIACEAE										
....NITZSCHIA	29	5	14	11	10	11	17#	27	49#	19
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	120#	47
...OSCILLATORIACEAE	--	-	--	-	--	-	--	-	52#	20
....OSCILLATORIA	150#	23	20#	15	*	0	--	-	--	-
...RIVULARIACEAE										
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: EDI

14113000 KLICKITAT RIVER NEAR PITT, WA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA

PHYTOPLANKTON ANALYSES, OCTOBER 1976 TO SEPTEMBER 1977

DATE	JUN 8,77	JUL 6,77	AUG 4,77	SEP 13,77
TIME	1030	1040	0845	1100
TOTAL CELLS/ML	2100	570	1200	550
DIVERSITY: DIVISION	0.7	0.9	0.0	0.9
.CLASS	0.7	0.9	0.0	0.9
..ORDER	0.9	1.2	0.6	1.1
...FAMILY	2.9	2.8	2.8	3.3
....GENUS	3.0	2.9	3.3	3.8

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	5	1
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....CLOSTERIOPSIS	39	2	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	44	8
....SCENEDESMUS	150	7	--	-	--	-	11	2
..ULOTRICHALES								
...ULOTRICHACEAE								
....ULOTHRIX	--	-	--	-	--	-	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..PENNALES								
...NAVICULACEAE								
....ENTOMONEIS	--	-	--	-	--	-	--	-
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	--	-	32	3	5	1
....MELOSIRA	39	2	29	5	55	5	16	3
....STEPHANODISCUS	19	1	--	-	--	-	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	39	2	6	1	32	3	5	1
....COCCONEIS	97	5	6	1	100	8	49	9
....RHOICOSPHENIA	--	-	17	3	47	4	22	4
...CYMBELLACEAE								
....CYMBELLA	19	1	35	6	24	2	55	10
....EPITHEMIA	--	-	--	-	16	1	--	-
....RHOPALODIA	--	-	12	2	8	1	5	1
...DIATOMACEAE								
....DIATOMA	740#	35	41	7	71	6	38	7
...FRAGILARIACEAE								
....FRAGILARIA	--	-	--	-	120	10	49	9
....HANNAEA	--	-	--	-	--	-	--	-
....SYNEDRA	120	6	12	2	--	-	16	3
...GOMPHONEMATACEAE								
....GOMPHONEIS	--	-	--	-	--	-	11	2
....GOMPHONEMA	230	11	29	5	140	12	33	6
...NAVICULACEAE								
....AMPHIPLEURA	--	-	--	-	--	-	*	0
....DIPLONEIS	--	-	--	-	16	1	--	-
....FRUSTULIA	--	-	--	-	--	-	--	-
....NAVICULA	410#	19	12	2	270#	23	76	14
...NITZSCHIACEAE								
....NITZSCHIA	77	4	180#	31	220#	19	60	11
...SURIRELLACEAE								
....SURIRELLA	19	1	--	-	8	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	63	11	--	-	--	-
...OSCILLATORIACEAE	--	-	--	-	--	-	--	-
....OSCILLATORIA	--	-	130#	23	--	-	44	8
...RIVULARIACEAE								
....RAPHIDIOPSIS	97	5	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%
SAMPLING METHOD: EDI

WATER QUALITY DATA, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	BIOMASS CHLORO-PHYLL RATIO PERI-PHYTON (UNITS)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	CHLOR-A PERI-PHYTON CHROMO-SPECT-METRIC (MG/M2)	CHLOR-B PERI-PHYTON CHROMO-SPECT-METRIC (MG/M2)	LENGTH OF EXPO-SURE (DAYS)
OCT							
22...	0830	2659	.077	.154	.020	.010	28

SAMPLING METHOD: Polyethylene Strip.

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited stream-flow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are useable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at partial-record stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. Discharge measurements made at miscellaneous sites for both low flow and high flow are given in a third table.

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. Most of these measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream where continuous records are available, will give a picture of the low-flow potentiality of the stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1977

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Spokane River basin				
12427000	Little Spokane River at Elk, Wa	Lat 48°01'20", long 117°16'19", in NW¼SE¼ sec.8, T.29 N., R.44 E., Spokane County, 0.6 mi (1.0 km) upstream from, and northeast of Elk, 3.0 mi (4.8 km) upstream from Dry Creek, and at mile 37.6 (60.5 km).	115	1948-71‡, 1973	2-21-77 4-18-77 5- 2-77 5- 9-77 5-16-77 5-23-77 5-31-77 6- 6-77 6-13-77 6-20-77 6-27-77 7- 5-77 7-12-77 7-19-77 7-26-77 8- 2-77 8- 9-77 8-16-77 8-23-77 8-29-77 8-30-77 9- 6-77 9-13-77 9-27-77	42.1 36.5 39.2 40.8 37.3 37.6 35.1 36.0 33.8 34.2 30.0 32.1 29.9 31.5 31.6 29.3 28.7 27.3 27.6 32.0 33.1 33.5 29.3 33.3
12428600	West Branch Little Spokane River near Elk, Wa	Lat 48°00'25", long 117°21'46", in SW¼ sec.15 T.29 N., R.43 E., Spokane County, at county road bridge (3935) 3.9 mi (6.3 km) west of Elk.	--	1962-70, 1973	9- 6-77	0
12429500	Little Spokane River at Chattaroy, Wa	Lat 47°53'22", long 117°21'16", in SE¼ sec.34, T.28 N., R.43 E., Spokane County, 200 ft (60 m) downstream from U.S. Highway 2 and 195 at Chattaroy, 200 ft (60 m) upstream from Deer Creek.	301	1948‡, 1952, 1955-58, 1960-70, 1973	2-25-77 4-19-77 5- 2-77 5- 9-77 5-16-77 5-23-77 5-31-77 6- 6-77 6-13-77 6-20-77 6-27-77 9- 1-77	106 90.5 78.4 83.7 72.5 81.0 79.1 71.7 77.5 65.4 58.5 46.7
12429600*	Deer Creek near Chattaroy, Wa	Lat 47°53'29", long 117°20'03", center of S½ sec.26, T.28 N., R.43 E., Spokane County, at county road bridge 1 mi (1.6 km) east of Chattaroy, 1 mi (1.6 km) upstream from mouth.	31.9	1948, 1952, 1955-58, 1960-73	2-25-77 4-18-77 8-29-77	2.19 2.20 0
12430100	Dragoon Creek at mouth, near Chattaroy, Wa	Lat 47°52'29", long 117°22'09", in SE¼ sec.4, T.27 N., R.43 E., Spokane County, 600 ft (180 m) upstream from mouth, 1.2 mi (1.9 km) southwest of Chattaroy.	177	1948, 1952, 1955-58, 1960-70, 1973	3- 4-77 4-19-77 8-31-77	37.6 25.2 14.1
12430150	Little Spokane River below Dragoon Creek, near Chattaroy, Wa	Lat 47°52'26", long 117°22'03", on line between secs.3 and 4, T.27 N., R.43 E., Spokane County, 500 ft (150 m) downstream from Dragoon Creek, 1.2 mi (1.9 km) southwest of Chattaroy.	511	1952, 1955-58, 1960-70, 1973	9- 6-77	74.9
12430200	Little Spokane River at Buckeye, Wa	Lat 47°50'36", long 117°22'26", in NE¼ sec.16, T.27 N., R.43 E., Spokane County, 50 ft (15 m) upstream from county bridge at Buckeye.	518	1952, 1955-58, 1960-70, 1973	9- 7-77	87.9
12430250	Little Spokane River near Buckeye, Wa	Lat 47°49'26", long 117°22'23", in SE¼ sec.21, T.27 N., R.43 E., Spokane County, 50 ft (15 m) downstream from county road bridge, 1.3 mi (2.1 km) south of Buckeye.	523	1952, 1955-58, 1960-70, 1973	9- 7-77	79.1

‡ Operated as a continuous-record gaging station.
* Operated as a crest-stage partial-record station.

Discharge measurements made at low-flow partial-record stations during water year 1977

Station No.	Station name	Location	Drainage area (sq mi)	Period of record	Measurements	
					Date	Discharge (cfs)
		Spokane River basin--Continued				
12430300	Little Spokane River above Deadman Creek, near Dartford, Wa	Lat 47°48'19", long 117°22'38", in S½ sec.28, T.27 N., R.43 E., Spokane County, at county road bridge, 0.8 mi (1.3 km) upstream from Deadman Creek, 2.3 mi (3.7 km) northeast of Dartford.	524	1952, 1955-58, 1960-70, 1973	9- 7-77	80.0
12430350	Deadman Creek near Mead, Wa	Lat 47°46'45", long 117°21'05", in E½ sec.3, T.26 N., R.43 E., Spokane County, 300 ft (90 m) downstream from highway bridge, 0.8 mi (1.3 km) north of Mead.	80.3	1948, 1952, 1955-58, 1960-70, 1973	9- 7-77	1.01
12430400	Deadman Creek below U.S. Highway 195, near Mead, Wa	Lat 47°46'53", long 117°21'49", in SE¼NW¼ sec.3, T.26 N., R.43 E., Spokane County, 1,000 ft (300 m) downstream from U.S. Highway 195, 1.1 mi north of Mead.	94.7	1953, 1955-58, 1960-70, 1973	2-25-77 4-22-77 9- 1-77	19.3 11.8 8.74
12430500	Deep Creek at Colbert, Wa	Lat 47°49'17", long 117°20'44", in SE¼ sec.22, T.27 N., R.43 E., Spokane County, at U.S. Highway 195 bridge, 0.5 mi (0.8 km) south of Colbert.	31.8	1948‡, 1952-53, 1955-58, 1960-70, 1973	2-25-77 4-19-77 8-29-77	1.97 1.22 0
12430600	Little Spokane River below Deadman Creek, near Dartford, Wa	Lat 47°47'36", long 117°23'03", in SW¼NW¼ (corrected) sec.33, T.27 N., R.43 E., Spokane County, 0.2 mi (0.3 km) downstream from Deadman Creek, 1.5 mi (2.4 km) northeast of Dartford.	659	1957-58, 1960-64, 1966-70, 1973	9- 7-77	96.3
12430700	Little Spokane River above Wandermere Lake Creek, near Dartford, Wa	Lat 47°47'06", long 117°24'03", in NW¼ sec.5, T.26 N., R.43 E., Spokane County, 400 ft (120 m) upstream from Wandermere Lake Creek, 0.7 mi (1.1 km) east of Dartford.	660	1953, 1955-58, 1960-70, 1973	9- 8-77	99.0
12430800	Wandermere Lake Creek near Dartford, Wa	Lat 47°47'01", long 117°24'04", in SE¼NW¼ sec.5, T.26 N., R.43 E., Spokane County, 100 ft (30 m) upstream from mouth, 0.7 mi (1.1 km) east of Dartford.	4.32	1953, 1955-58, 1960-70, 1973	9- 7-77	7.05
12431200	Little Spokane River below Country Club, near Dartford, Wa	Lat 47°46'11", long 117°27'10", in NW¼NW¼ sec.12, T.26 N., R.42 E., Spokane County, 10 ft (3.0 km) upstream from road bridge, 1.9 mi (3.1 km) southwest of Dartford.	691	1953, 1955-58, 1960-70, 1973	9- 8-77	274
12431500	Little Spokane River near Dartford, Wa	Lat 47°46'52", long 117°29'43", in SW¼NW¼ sec.3, T.26 N., R.42 E., Spokane County, at former gaging station near Dartford.	698	1948-52‡, 1953, 1956-57, 1961-70, 1973	9- 9-77	361
12432000	Little Spokane River at mouth, near Spokane, Wa	Lat 47°46'59", long 117°31'43", in SE¼NW¼ sec.5, T.26 N., R.42 E., Spokane County, 50 ft (15 m) downstream from county road bridge, 1.1 mi (1.8 km) upstream from mouth, 5.3 mi (8.5 km) west of Dartford.	700	1903-05, 1912, 1913-14‡, 1920-21, 1923-24, 1930-32, 1947-48, 1953, 1955-58, 1960-73	12-21-76 2-17-77 4-19-77 5- 2-77 5- 9-77 5-16-77 5-23-77 5-31-77 6- 6-77 6-13-77 6-20-77 6-27-77 9- 1-77	475 485 418 438 410 411 421 404 410 410 365 365 374

‡ Operated as continuous-record gaging station.

Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained and discharge measurements may have been made for purposes of establishing the stage-discharge relation, but these are not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1977

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Pend Oreille River basin					
12396000	Calispell Creek near Dalkena, Wa.	Lat 48°14'40", long 117°20'26", in NE¼SW¼ sec.26, T.32 N., R.43 E., Pend Oreille County, 2.4 mi (3.9 km) upstream from Calispell Lake, and 4.8 mi (7.7 km) west of Dalkena.	68.3 (177)	1950-73‡, 1974-	3- 9-77	4.89	41
12396100	Winchester Creek near Cusick, Wa.	Lat 48°16'52", long 117°21'44", in NW¼ sec.15, T.32 N., R.43 E., Pend Oreille County, at county road around Calispell Lake and 4.8 mi (7.7 km) southwest of Cusick.	16.8 (43.5)	1954-	1-13-77	9.83	44
		Deep Creek basin					
12399600	Deep Creek near Northport, Wa.	Lat 48°55'47", long 117°44'59", in SE¼NW¼ sec.34, T.40 N., R.40 E., Stevens County, on left bank 0.5 mi (0.8 km) upstream from mouth, 2.0 mi (3.2 km) northeast of Northport.	191 (495)	1972-75‡, 1976-	6- 4-77	2.32	82
		Colville River basin					
12407520	Deer Creek near Valley, Wa.	Lat 48°07'06", long 117°47'52", in NW¼NW¼ sec.8, T.30 N., R.40 E., Stevens County, on left bank at downstream side of county road bridge, 2.0 mi (3.2 km) upstream from confluence with Sheep Creek, 5 mi (8.0 km) southwest of Valley, and at river mile 2.0 (3.2 km).	36.0 (93.2)	1959-72‡, 1973-	3-13-77	1.71	31
12408300	Little Pend Oreille River near Colville, Wa.	Lat 48°27'58", long 117°44'53", in NW¼NW¼ sec.10, T.34 N., R.40 E., Stevens County, on right bank 320 ft (98 m) upstream from abandoned railroad bridge, 0.5 mi (0.8 km) downstream from Bear Creek, 6.2 mi (10.0 km) east of Arden, 9.2 mi (14.8 km) southeast of Colville, and at mile 7.0 (11.3 km).	132 (342)	1957-75‡ 1976-	3-23-77	1.77	59
12408420	Haller Creek near Arden, Wa.	Lat 48°28'02", long 117°54'24", in SW¼SW¼ sec.4, T.34 N., R.39 E., Stevens County, 10 ft (3 m) downstream from county road bridge, 1.5 mi (2.4 km) northwest of Arden.	37.0 (95.8)	1959-70‡, 1971-	5- 4-77	1.00	9
12408500	Mill Creek near Colville, Wa.	Lat 48°34'44", long 117°51'56", in SW¼NW¼ sec.35, T.36 N., R.39 E., Stevens County, on right bank 3.0 mi (4.8 km) northeast of Colville, 5.3 mi (8.5 km) downstream from North Fork, and at mile 10.9 (17.5 km).	83.0 (215)	1939-72‡, 1973-	3-23-77	2.45	39
		Spokane River basin					
12427000	Little Spokane River at Elk, Wa.	Lat 48°01'20", long 117°16'19", in NW¼SE¼ sec.8, T.29 N., R.44 E., Spokane County, 0.6 mi (1.0 km) upstream from and northeast of Elk.	115 (298)	1948-71‡, 1972-	1-18-77	1.51	77
12431100	Little Creek at Dartford, Wa. (discontinued)	Lat 47°47'05", long 117°25'00", in NE¼ sec.6, T.26 N., R.43 E., Spokane County, at junction of Hazard and Dartford Roads at Dartford, and 0.2 mi (0.3 km) above mouth.	11.9 (30.8)	1963-77	2-11-77	13.90	140
		Hawk Creek basin					
12433580	Cottonwood Creek (formerly Hawk Creek) at Davenport, Wa. (discontinued)	Lat 47°39'22", long 118°08'17", in NW¼NW¼ sec.22, T.25 N., R.37 E., Lincoln County, at old U.S. Highway 2, at east edge of Davenport.	23.2 (60.1)	1957, 1959, 1963-77	2-10-77	10.38	13
		Sanpoil River basin					
12433890	Sanpoil River above Thirteenmile Creek, near Republic, Wa.	Lat 48°28'38", long 118°43'41", in SE¼NW¼ sec.1, T.34 N., R.32 E., Ferry County, Colville Indian Reservation, on right bank downstream wingwall of bridge on State Highway 21, 25 ft (7.6 m) upstream from Thirteenmile Creek, 2.1 mi (3.4 km) upstream from West Fork Sanpoil River, 11.8 mi (19.0 km) south of Republic and at mile 45.5 (73.2 km).	263 (681)	1972-74‡, 1975-	9-25-77	2.28	148
12433930	Bailey Creek near Aeneas, Wa. (discontinued)	Lat 48°33'48", long 119°01'58", in NE¼SW¼ sec.2, T.35 N., R.30 E., Okanogan County, at county road crossing, 0.8 mi (1.3 km) upstream from mouth and 3.0 mi (4.8 km) northwest of Aeneas.	8.04 (20.8)	1974-77	4- 4-77	6.58	1.0
12434110	West Fork Sanpoil River near Republic, Wa.	Lat 48°27'33", long 118°44'57", in NE¼SW¼ sec.11, T.34 N., R.32 E., Ferry County, Colville Indian Reservation, on upstream left-bank wingwall of bridge on State Highway 21, 13.9 mi (22.4 km) south of Republic, and at mile 0.5 (0.8 km).	308 (798)	1972-74‡, 1975-	5- 4-77	---	e40

‡ Operated as continuous-record gaging station.

e Estimated.

Annual maximum discharge at crest-stage partial-record stations during water year 1977

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Sanpoil River basin--Continued					
12434300	Bridge Creek near Keller, Wa. (discontinued)	Lat 48°14'25", long 118°35'49", in SE¼SW¼ sec.25, T.32 N., R.33 E., Ferry County, at road crossing 6 mi (9.7 km) above mouth and 12 mi (19.3 km) northeast of Keller.	18.4 (47.7)	1971-77	3- 9-77	8.77	20
12434500	Sanpoil River near Keller, Wa.	Lat 48°06'26", long 118°41'51", in NE¼NE¼ sec.18, T.30 N., R.33 E., Ferry County, Colville Indian Reservation, on right bank, 0.3 mi (0.5 km) upstream from Brush Creek, 2.2 mi (3.5 km) north of Keller, and at mile 14.1 (22.7 km).	880 (2,279)	1952-55‡, 1956-59, 1972-74‡, 1975-	6- 4-77	3.50	85
12434600	Jack Creek at Keller, Wa.(discontinued)	Lat 48°04'54", long 118°41'18", in SW¼SW¼ sec.20, T.30 N., R.33 E., Ferry County, at State Highway 21, 0.2 mi (0.3 km) above mouth and 0.4 mi (0.6 km) northwest of Keller.	8.17 (21.2)	1971-77	9-25-77	5.09	5.0
		Nespelem River basin					
12436850	Parmenter Creek near Nespelem, Wa. (discontinued)	Lat 48°15'06", long 118°58'47", in SE¼SE¼ sec.24, T.32 N., R.30 E., Okanogan County, at road crossing 0.5 mi (0.8 km) upstream from mouth and 6.0 mi (9.7 km) north of Nespelem.	6.94 (18.0)	1974-77	1977	---	††
12437505	Nespelem River below millpond, at Nespelem, Wa	Lat 48°09'55", long 118°58'46", on south line, SE¼SE¼ sec.24, T.31 N., R.30 E., Okanogan County, Colville Indian Reservation, on left bank on upstream wingwall of county bridge, at Nespelem, 0.2 mi (0.3 km) downstream from millpond, and 3.9 mi (6.3 km) upstream from Little Nespelem River.	123 (319)	1972-74‡, 1975-	9-25-77	2.21	142
		Foster Creek basin					
12437930	East Fork Foster Creek at Leahy, Wa. (discontinued)	Lat 47°54'52", long 119°23'00", in NE¼NE¼ sec.23, T.28 N., R.27 E., Douglas County, at State Highway 17, 0.5 mi (0.8 km) southeast of Leahy.	35.4 (91.7)	1959, 1963-77	6- 2-77	11.07	12
12437950	East Fork Foster Creek tributary near Bridgeport, Wa. (discontinued)	Lat 47°57'06", long 119°37'58", in NE¼SW¼ sec.1, T.28 N., R.25 E., Douglas County, at State Highway 17, 3.5 mi (5.6 km) southeast of Bridgeport.	4.75 (12.3)	1957-77	6- 2-77	3.83	6.5
12437960	West Fork Foster Creek near Bridgeport, Wa. (discontinued)	Lat 47°53'04", long 119°43'06", in SE¼NW¼ sec.32, T.28 N., R.25 E., Douglas County, at road crossing, 4 mi (6.4 km) above Middle Fork and 8 mi (12.9 km) south of Bridgeport.	28.0 (72.5)	1957, 1963-77	3-11-76 1-19-77	14.57* 12.00	*121 25
		Okanogan River basin					
12439200	Dry Creek tributary near Molson, Wa. (discontinued)	Lat 48°54'53", long 119°12'44", in NE¼ sec.6, T.39 N., R.29 E., Okanogan County, 4.5 mi (7.2 km) south of Molson and 10 mi (16.1 km) east of Oroville.	1.68 (4.35)	1958-77	4- 4-77	---	e0.1
12442000	Toats Coulee Creek near Loomis, Wa.	Lat 48°50'01", long 119°41'32", in NE¼SE¼ sec.33, T.39 N., R.25 E., Okanogan County, 600 ft (183 m) upstream from Deer Creek, 1,800 ft (549 m) upstream from intake of Whitestone Irrigation Canal and 2.8 mi (4.5 km) northwest of Loomis.	130 (337)	1920-26‡, 1957-70‡, 1971-	5- 3-77	3.38	287
12444400	Siwash Creek tributary near Tonasket, Wa. (discontinued)	Lat 48°43'12", long 119°22'12", in NE¼ sec.12, T.37 N., R.27 E., Okanogan County, at county road 3.2 mi (5.1 km) northeast of Tonasket.	.66 (1.71)	1957, 1959-77	1977	---	††
12445900	Omak Creek near Omak, Wa.	Lat 48°22'02", long 119°26'38", in NE¼NW¼ sec.16, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, on right bank downstream wingwall of county highway bridge, 1.3 mi (2.1 (km) upstream from Mission Creek, and 3.9 mi (6.3 km) southeast of Omak.	119 (308)	1972-74‡, 1975-, 1976-‡	6- 4-77	1.53	16
12445920	Kartar Creek above Nelson Creek near Omak, Wa. (discontinued)	Lat 48°13'16", long 119°16'08", in NE¼NW¼ sec.2, T.31 N., R.28 E., Okanogan County, Colville Indian Reservation, 10 mi (16.1 km) southwest of Disautel, 1.6 mi (2.57 km) southeast of Omak Lake, 17.4 mi (28.0 km) southeast of Okanogan.	-	1975-77	2-28-77	9.94	16
12447270	Summit Creek near Malott, Wa. (discontinued)	Lat 48°22'34", long 119°46'10", in SW¼NW¼ sec.12, T.33 N., R.24 E., Okanogan County, at road crossing, 0.4 mi (0.6 km) upstream from Loup Loup Creek, and 7.0 mi (11.3 km) northwest of Malott.	17.4 (45.1)	1974-77	5- 2-77	<6.76	e5
		Methow River basin					
12447380	Pine Creek near Mazama, Wa.	Lat 48°34'48", long 120°37'33", in NE¼ sec.32, T.36 N., R.18 E., Okanogan County, at State Highway 20, 10 mi (16.1 km) west of Mazama.	4.63 (12.0)	1966-	6- 8-77	19.08	76
12449910	Methow River tributary No. 2 near Methow, Wa.(discontinued)	Lat 48°04'24", long 119°59'43", in SE¼NE¼ sec.30, T.30 N., R.23 E., Okanogan County, at State Highway 153, 4.2 mi (6.8 km) south of Methow.	1.00 (2.59)	1970-77	8-24-77	---	e1.0

‡ Operated as continuous-record gaging station.

†† No evidence of flow.

* Revised.

e Estimated.

Annual maximum discharge at crest-stage partial-record stations during water year 1977

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Antoine Creek basin					
12450720	Antoine Creek near Azwell, Wa. (discontinued).	Lat 47°55'32", long 119°54'07", in E½ sec.18, T.28 N., R.32 E., Chelan County, at U.S. Highway 97 crossing, 0.9 mi (1.4 km) upstream from mouth, and 1.5 mi (2.4 km) southwest of Azwell.	35.6 (92.2)	1974-77	2-27-77	----	e4
		Wenatchee River basin					
12455000	Wenatchee River below Wenatchee Lake, Wa.	Lat 47°48'30", long 120°43'20", in sec.28, T.27 N., R.17 E., on left bank 0.1 mi (0.2 km) downsteam from lake outlet, 4.8 mi (7.7 km) northwest of Plain, and 17 mi (27 km) northwest of Leavenworth.	273 (707)	1932-58‡, 1959-	6- 8-77	75.58	7,190
12458000	Icicle Creek above Snow Creek near Leavenworth, Wa.	Lat 47°32'28", long 120°43'08", in SE¼SE¼ sec.28, T.24 N., R.17 E., Chelan County, 1,000 ft (305 m) upstream from Icicle Canal diversion dam and 4.8 mi (7.7 km) southwest of Leavenworth.	193 (500)	1936-71‡, 1973-	6- 7-77	8.63	2,370
12461200	East Branch Mission Creek tributary near Cashmere, Wa.	Lat 47°22'50", long 120°29'20", in SW¼ sec.20, T.22 N., R.19 E., Chelan County, at U.S. Forest Service road, 9.7 mi (15.6 km) south of Cashmere.	2.49 (6.45)	1955-	1-18-77	10.23	0.30
12461400	Mission Creek above Sand Creek near Cashmere, Wa.	Lat 47°25'48", long 120°30'28", in SW¼NE¼ sec.6, T.22 N., R.19 E., Chelan County, 400 ft (122 m) upstream from Sand Creek, 7.0 mi (11.3 km) south of Cashmere.	39.8 (103)	1959-71‡, 1972-	1-18-77	3.21	125
		Dry Gulch basin					
12462610	Dry Gulch near Malaga, Wa. (discontinued)	Lat 47°18'38", long 120°05'47", in SE¼NE¼ sec.17, T.21 N., R.22 E., Chelan County, at Colockum road, 0.4 mi (0.6 km) above mouth and 6.2 mi (10.0 km) southeast of Malaga.	12.0 (31.1)	1971-77	6-13-77	16.66	136
		Colockum Creek basin					
12462630	Colockum Creek tributary near Malaga, Wa. (discontinued)	Lat 47°15'54", long 120°10'56", in SW¼SE¼ sec.34, T.21 N., R.21 E., Chelan County, at Colockum road 6.7 mi (10.8 km) south of Malaga.	0.49 (1.27)	1971-77	2-10-77	6.72	0.20
		Douglas Creek basin					
12463600	Rattlesnake Creek tributary near Soap Lake, Wa. (discontinued)	Lat 47°26'30", long 119°35'45", in SW¼ sec.32, T.23 N., R.26 E., Douglas County, at county road, 6 mi (9.7 km) northwest of Soap Lake.	2.22 (5.75)	1959, 1961-77	1977	----	††
		Crab Creek basin					
12464780	Crab Creek above Sylvan Lake, near Lamona, Wa.	Lat 47°18'33", long 118°29'55", in NE¼SW¼ sec.14, T.21 N., R.34 E., Lincoln County, on right bank 2.0 mi (3.2 km) upstream from Sylvan Lake, 25 ft (7.6 m) downstream from concrete dam, and 3.5 mi (5.6 km) south of Lamona.	542 (1,404)	1972-74‡, 1975-	1-13-77	2.47	34
12464800	Coal Creek at Mohler, Wa.	Lat 47°24'25", long 118°19'04", in SE¼SE¼ sec.7, T.22 N., R.36 E., Lincoln County, on left bank 25 ft (7.6 m) upstream from bridge on county road, 0.3 mi (0.5 km) east of Mohler, and 15 mi (24.1 km) upstream from mouth.	64.7 (167.6)	1963-74‡, 1975-	3- 8-77	0.89	4.9
12465100	Cannawai Creek tributary near Govan, Wa. (discontinued)	Lat 47°36'52", long 118°47'01", in SW¼SW¼ sec.34, T.25 N., R.32 E., Lincoln County, at county road, 0.2 mi (0.3 km) north of State Highway 21 and 9 mi (14.5 km) south of Govan.	0.25 (0.65)	1958-77	1977	----	††
12465400	Wilson Creek below Corbett Draw near Almira, Wa.	Lat 47°39'47", long 118°55'46", in SW¼NW¼ sec.16, T.25 N., R.31 E., Lincoln County, 65 ft (20 m) downstream from Corbett Draw and 3.5 mi (5.6 km) south of Almira.	327 (847)	1969-71‡, 1972-	2-12-77	3.48	20
12465500	Wilson Creek at Wilson Creek, Wa.	Lat 47°25'50", long 119°06'10", in SW¼NW¼ sec.6, T.22 N., R.30 E., Grant County, 1.0 mi (1.6 km) northeast of town of Wilson Creek and at mile 1.0 (1.6 km).	427 (1,106)	1951-57‡, 1958-73‡, 1974-	1977	----	††
12471200	Lind Coulee tributary near Lind, Wa. (discontinued)	Lat 46°57'17", long 118°35'57", in NE¼NE¼ sec.24, T.17 N., R.33 E., Adams County, at old U.S. Highway 395, 1.3 mi (2.1 km) southeast of Lind.	0.21 (0.54)	1956, 1961-77	1977	----	††
12471270	Farrier Coulee near Schrag, Wa.	Lat 47°07'33", long 118°50'17", in SW¼NE¼ sec.19, T.19 N., R.32 E., Adams County, on left bank 3.8 mi (6.1 km) upstream from confluence with Bauer Coulee, and 3.7 mi (5.0 km) north of Schrag.	42.0 (109)	1963-74‡, 1975-	1977	----	††
		Scooteney Reservoir basin					
12473710	Kansas No. 2 tributary near Cunningham, Wa. (discontinued)	Lat 46°49'26", long 118°56'35", on line between sec.32, T.16 N., and sec.5, T.15 N., R.31 E., Adams County, at county road, 0.9 mi (1.4 km) above mouth and 6.5 mi (10.5 km) west of Cunningham.	3.31 (8.57)	1971-77	1977	----	††

‡ Operated as continuous-record gaging station.
†† No evidence of flow.
e Estimated.

Annual maximum discharge at crest-stage partial-record stations during water year 1977

Station No.	Station name	Location	Drainage area mi^2 (km^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Dis-charge (cfs)
		Yakima River basin					
12474700	Mosquito Creek near Easton, Wa. (discontinued)	Lat 47°17'32", long 121°19'23", in SE¼ sec.22, T.21 N., R.12 E., Kittitas County, at Forest Service road, 2 mi (3.2 km) southeast of Keechelus Dam and 8 mi (12.9 km) northwest of Easton.	1.07 (2.77)	1968-77	4-24-77	16.14	46
12475300	Box Canyon tributary near Easton, Wa. (discontinued)	Lat 47°22'57", long 121°15'42", near center of sec.19, T.22 N., R.13 E., Kittitas County, at Forest Service road 2.5 mi (4.0 km) north of Kachess Guard Station, and 11 mi (17.7 km) northwest of Easton.	.36 (.93)	1969-77	1977	----	<15
12479600	Thornton Creek near Cle Elum, Wa. (discontinued).	Lat 47°09'22", long 120°51'34", in SE¼NE¼ sec.8, T.19 N., R.16 E., Kittitas County, at county road 0.8 mi (1.3 km) upstream from mouth and 4.5 mi (7.2 km) southeast of Cle Elum.	.66 (1.71)	1971-77	1-19-77	6.08	20
12480000	Teanaway River below Fork, near Cle Elum, Wa.	Lat 47°14'48", long 120°51'36", in NE¼NE¼ sec.8, T.20 N., R.16 E., Kittitas County, 0.4 mi (0.6 km) downstream from North Fork, and 5.0 mi (8.0 km) northeast of Cle Elum.	172 (445)	1911-12‡, 1968-73‡, 1974-	1977	----	f
12484600	McPherson Canyon at Wymer, Wa. (discontinued)	Lat 46°50'03", long 120°27'12", in SW¼NE¼ sec.33, T.16 N., R.19 E., Kittitas County, at U.S. Highway 97, 0.5 mi (0.8 km) northeast of Wymer.	5.48 (14.2)	1952, 1955-77	1977	----	††
12491700	Hause Creek near Rimrock, Wa.	Lat 46°40'33", long 121°04'49", in NE¼ sec.28, T.14 N., R.14 E., Yakima County, at State Highway 14, 0.1 mi (0.2 km) west of Tieton Ranger Station and 2.5 mi (4.0 km) east of Rimrock.	3.91 (10.1)	1955-	2-12-77	6.35	23
12500400	Firewater Canyon near Moxee City, Wa. (discontinued)	Lat 46°30'14", long 120°08'37", in NW¼NW¼ sec.25, T.12 N., R.21 E., Yakima County, at State Highway 24, 12 mi (19.3 km) southeast of Moxee City.	7.30 (18.9)	1963-77	1-18-77	5.99	e.2
12506800	North Medicine Creek near White Swan, Wa. (discontinued)	Lat 46°26'53", long 120°48'09", in SW¼SE¼ sec.10, T.11 N., R.16 E., Yakima County, at county road crossing 6.9 mi (11.1 km) upstream from mouth, and 7.1 mi (11.4 km) northwest of White Swan.	1.53 (3.96)	1974-77	1977	----	††
12507660	Satus Creek tributary near Toppenish, Wa. (discontinued)	Lat 46°05'27", long 120°32'57", in NW¼SW¼ sec.15, T.7 N., R.18 E., Yakima County, on U.S. Highway 97, 23 mi (37.0 km) south of Toppenish.	8.54 (22.1)	1953, 1956, 1961, 1963-77	1-19-77	----	e.5
12509800	Snipes Creek tributary near Benton City, Wa. (discontinued)	Lat 46°20'15", long 119°39'30", in NW¼SW¼ sec.23, T.10 N., R.25 E., Benton County, at Sharp Road 10 mi (16.1 km) northwest of Benton City.	5.18 (13.4)	1965, 1967-77	1977	----	††
		Esquatzel Coulee basin					
12513300	Dunnigan Coulee near Connell, Wa. (discontinued)	Lat 46°34'39", long 118°51'26", in SE¼SE¼ sec.25, T.13 N., R.31 E., Franklin County, on U.S. Highway 395, about 6 mi (9.7 km) south of Connell.	27.1 (70.2)	1956, 1963-77	1977	----	††
		Tenmile Creek basin					
13334400	Mill Creek at Anatone, Wa. (discontinued)	Lat 46°08'04", long 117°07'51", in SW¼SE¼ sec.26, T.8 N., R.45 E., Asotin County, at county road in Anatone.	2.74 (7.10)	1971-77	6- 6-77	8.70	50
		Asotin Creek basin					
13334900	Pintler Creek near Anatone, Wa. (discontinued)	Lat 46°07'59", long 117°09'56", in NE¼NE¼ sec.33, T.8 N., R.45 E., Asotin County, at county road 1.7 mi (2.7 km) west of Anatone.	0.86 (2.23)	1971-77	1-18-77	----	e0.5
		Dry Creek basin					
13343450	Dry Creek at mouth near Clarkston, Wa. (discontinued)	Lat 46°24'27", long 117°06'21", in NE¼ sec.25, T.11 N., R.45 E., Asotin County, at county road, 0.9 mi (1.4 km) above mouth and 2 mi (3.2 km) west of Clarkston.	6.83 (17.7)	1963-77	1977	----	††
		Alpowa Creek basin					
13343510	Alpowa Creek at Peola, Wa. (discontinued)	Lat 46°19'03", long 117°29'28", in SW¼NE¼ sec.25, T.10 N., R.42 E., Garfield County, at State Highway 128, 0.8 mi (1.3 km) northwest of Peola.	0.5 (1.30)	1972-77	3- 6-77	----	0.1
		Deadman Creek basin					
13343790	Meadow Creek tributary near Central Ferry, Wa. (discontinued)	Lat 46°35'06", long 117°44'51", in SE¼NE¼ sec.26, T.13 N., R.40 E., Garfield County, 3.2 mi (5.1 km) south of Central Ferry.	1.63 (4.22)	1970-77	1977	----	††
13343800	Meadow Creek near Central Ferry, Wa.	Lat 46°35'51", long 117°46'34", in SE¼NW¼ sec.22, T.13 N., R.40 E., Garfield County, on right bank 5 ft (2 m) downstream from county bridge, 1.3 mi (2.1 km) upstream from mouth, 2.0 mi (3.2 km) southeast of Central Ferry, and 5.4 mi (8.7 km) north of Dodge.	66.2 (171.5)	1963-74‡, 1975-	1977	----	<50

‡ Operated as continuous-record station.
†† No evidence of flow.
e Estimated.
f Peak flow not determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1977

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Tucannon River basin					
13344506	Kellogg Creek tributary No. 2 near Starbuck, Wa. (discontinued)	Lat 46°28'46", long 118°06'47", in SW¼NW¼ sec.31, T.12 N., R.38 E., Columbia County, at Kellogg Creek road 2.8 mi (4.5 km) southeast of Starbuck.	2.95 (7.64)	1970-77	9-24-77	18.79	44
		Palouse River basin					
13349300	Palouse River tributary at Colfax, Wa.	Lat 46°53'22", long 117°22'59", in SE¼SW¼ sec.10, T.16 N., R.43 E., Whitman County, at U.S. Highway 295, about 1 mi (1.6 km) west of Colfax.	2.10 (5.44)	1955-	2-14-77	16.25	6.0
13349309	Palouse River tributary at Winona, Wa. (discontinued)	Lat 46°57'37", long 117°48'12", in SE¼SW¼ sec.17, T.17 N., R.40 E., Whitman County, at county road 1 mi (1.6 km) north of Winona.	2.94 (7.61)	1967-77	1977	----	††
13349400	Pine Creek at Pine City, Wa.	Lat 47°12'24", long 117°30'14", on line between NW¼ and NE¼ sec.27, T.20 N., R.42 E., Whitman County, on right bank 1.0 mi (1.6 km) east of Pine City and 2.3 mi (3.7 km) west of Malden.	302 (782)	1961-75‡, 1976-	1-18-77	5.20	93
13349670	Pleasant Valley Creek tributary near Thornton, Wa. (discontinued)	Lat 47°02'30", long 117°26'19", in NE¼SW¼ sec.19, T.18 N., R.43 E., Whitman County, at county road 6 mi (9.7 km) southwest of Thornton.	.77 (1.99)	1967-77	3- 9-77	----	e0.1
13349800	Imbler Creek tributary near Lamont, Wa. (discontinued)	Lat 47°09'51", long 117°52'56", in SW¼SE¼ sec.3, T.19 N., R.39 E., Whitman County, at county road 2.8 mi (4.5 km) southeast of Lamont.	1.33 (3.44)	1967-77	1977	----	††
13350500	Union Flat Creek near Colfax, Wa.	Lat 46°48'37", long 117°25'52", in NW¼NW¼ sec.8, T.15 N., R.43 E., Whitman County, 20 ft (6 m) upstream from county road bridge 6.0 mi (9.7 km) southwest of Colfax.	189 (490)	1953-71‡, 1976-	3-10-77	4.68	191
13350800	Willow Creek tributary near La Crosse, Wa. (discontinued)	Lat 46°45'26", long 117°55'08", in SW¼NE¼ sec.28, T.15 N., R.39 E., Whitman County, at county road 4.3 mi (6.9 km) southwest of La Crosse.	.95 (2.46)	1967-77	1977	----	††
13352500	Cow Creek at Hooper, Wa.	Lat 46°45'46", long 118°08'46", in NW¼NW¼ sec.26, T.15 N., R.37 E., Adams County, on county road bridge, 0.5 mi (0.8 km) upstream from mouth and 0.5 mi (0.8 km) north of Hooper.	679 (1,759)	1951-54‡, 1962-70‡, 1971-	1977	----	f
		Smith Canyon basin					
13353050	Smith Canyon tributary near Connell, Wa. (discontinued)	Lat 46°32'28", long 118°45'54", in SE¼NW¼ sec.9, T.12 N., R.32 E., Franklin County, at county road about 8.5 mi (13.7 km) south of Connell.	1.80 (4.66)	1955-77	1977	----	††
		Walla Walla River basin					
14013000	Mill Creek near Walla Walla, Wa.	Lat 46°00'29", long 118°07'03", in SW¼SW¼ sec.7, T.6 N., R.38 E., Walla Walla County, on left bank, 0.1 mi (0.2 km) downstream from Railroad Canyon, 4.0 mi (6.4 km) downstream from city of Walla Walla diversion dam, 4.4 mi (7.1 km) upstream from Blue Creek, 11.5 mi (18.5 km) southeast of Walla Walla, and at mile 21.2 (34.1 km).	59.6 (154.4)	1913-17‡, 1938-76‡, 1977-	3- 9-77	15.42	320
14017070	East Fork McKay Creek near Huntsville, Wa. (discontinued)	Lat 46°21'47", long 118°07'57", in SW¼NW¼ sec.12, T.10 N., R.37 E., Columbia County, at county road 1.7 mi (2.7 km) southwest of Alto.	4.92 (12.7)	1963-77	3- 3-77	----	e10
14017490	Touchet River tributary near Lowden, Wa. (discontinued)	Lat 46°09'10", long 118°37'25", in SE¼SE¼ sec.23, T.8 N., R.33 E., Walla Walla County, at county road crossing, 7.1 mi (11.4 km) northwest of lowden and 0.5 mi (0.8 km) upstream from mouth.	4.70 (12.17)	1975-77	1977	----	††
14019100	Walla Walla River tributary near Wallula, Wa. (discontinued)	Lat 46°03'12", long 118°52'58", in SW¼ sec.25, T.7 N., R.31 E., Walla Walla County, at U.S. Highway 410, 1.5 mi (2.4 km) southeast of Wallula.	.80 (2.07)	1955-77	9-21-77	----	.5
		Fourmile Canyon basin					
14034040	Bofer Canyon tributary near Kennewick, Wa. (discontinued)	Lat 46°03'42", long 119°13'22", at center of line between secs.29 and 30, T.7 N., R.29 E., Benton County, at State Highway 12, 10 mi (16.1 km) southwest of Kennewick.	1.53 (3.96)	1965, 1967-77	1977	----	††
		Glade Creek basin					
14034270	East Branch Glade Creek near Prosser, Wa. (discontinued)	Lat 46°04'35", long 119°35'10", on line between secs.19 and 20, T.7 N., R.26 E., Benton County, at State Highway 221 and 12 mi (19.3 km) southeast of Prosser.	50.3 (130)	1962-77	1977	----	††
		Alder Creek basin					
14034325	Alder Creek near Bickleton, Wa. (discontinued)	Lat 45°59'49", long 120°16'31", in NE¼NW¼ sec.23, T.6 N., R.20 E., Klickitat County, at county road 1.3 mi (2.1 km) east of Bickleton.	8.35 (21.6)	1963-77	2-12-77	----	e.5

‡ Operated as continuous-record station.
†† No evidence of flow.
e Estimated.
f Peak flow not determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1977

Station No.	Station name	Location	Drainage area mi² (km²)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (cfs)
		Klickitat River basin					
14110000	Klickitat River near Glenwood, Wa.	Lat 46°05'20", long 121°15'30", in SE¼ sec.14, T.7 N., R.12 E., Yakima County, 0.4 mi (0.6 km) downstream from Dairy Creek and 5.2 mi (8.4 km) north of Glenwood.	360 (932)	1909-71‡, 1972-	4-25-77	2.48	835
14110700	Medley Canyon Creek near Glenwood, Wa. (discontinued)	Lat 45°56'47", long 121°18'13", in NE¼SE¼ sec.4, T.5 N., R.12 E., at county road 5 mi (8.0 km) south of Glenwood.	1.26 (3.26)	1970-77	1977	----	††
14112000	Little Klickitat River near Goldendale, Wa.	Lat 45°50'40", long 120°47'42", in NE¼SW¼ sec.10, T.4 N., R.16 E., Klickitat County, 400 ft (122 m) upstream from State Highway 97 bridge, and 2.1 mi (3.4 km) northeast of Goldendale.	83.5 (216)	1911-12‡, 1947-51‡, 1958-70‡, 1971-	1977	----	<776
14112200	Little Klickitat River tributary near Goldendale, Wa.	Lat 45°50'15", long 120°47'50", in NW¼ sec.15, T.4 N., R.16 E., Klickitat County, at county road 1.5 mi (2.4 km) northeast of Goldendale.	.71 (1.84)	1960-	1977	----	††
14112400	Mill Creek near Blockhouse, Wa.	Lat 45°51'34", long 120°57'49", in NW¼SW¼ sec.5, T.4 N., R.15 E., Klickitat County, on left bank 1.9 mi (3.1 km) northwest of Blockhouse and 3.5 mi (5.6 km) upstream from mouth.	26.9 (69.7)	1964-72‡, 1973-	1977	----	<12

‡ Operated as continuous-record station.
†† No evidence of flow.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Pend Oreille River basin				
12395900 Davis Creek	Pend Oreille River	Lat 48°13'51", long 117°17'14", in NE¼ sec.31, T.32 N., R.44 E., Pend Oreille County, at State Highway 311 at outlet of Davis Lake, 2.5 mi (4.0 km) southeast of Dalkena.	16.8	1954-73a, 1962-63, 1965, 1969	2-23-77 4-21-77 8-31-77	9.39 6.11 2.35
12396000 Calispell Creek	Do.....	Lat 48°14'40", long 117°20'26", in NE¼SW¼ sec.26, T.32 N., R.43 E., Pend Oreille County, 2.4 mi (3.9 km) upstream from Calispell Lake, and 4.8 mi (7.7 km) west of Dalkena.	68.3	1950-73‡, 1974a, 1974	9- 3-76 11- 4-76 2-23-77 4-14-77 8- 4-77 8-30-77	c18.3 4.57 16.8 37.5 15.4 3.16
12396100 Winchester Creek	Calispell Creek	Lat 48°16'52", long 117°21'44", in NW¼ sec.15, T.32 N., R.43 E., Pend Oreille County, at county road around Calispell Lake and 4.8 mi (7.7 km) southwest of Cusick.	16.8	1957‡, 1954-76a, 1964-68, 1975	2-23-77 4-21-77 8-30-77	3.46 6.27 1.08
Cee Cee Ah Creek	Pend Oreille River	Lat 48°23'08", long 117°16'14", in SE¼SW¼ sec.5, T.33 N., R.44 E., Pend Oreille County, at Le Clerc road crossing 1,500 ft (460 m) from mouth.	17.8	---	4-21-77 8-30-77	4.76 3.88
Le Clerc Creek	Do.....	Lat 48°21'19", long 117°16'52", in SW¼SW¼ sec.20, T.35 N., R.44 E., Pend Oreille County, at Le Clerc road crossing 700 ft (210 m) from mouth.	87.7	---	4-21-77 8-30-77	46.8 20.9
12396450 Little Muddy Creek	Big Muddy Creek	Lat 48°43'58", long 117°25'36", in SW¼ sec.6, T.37 N., R.43 E., Pend Oreille County, at southwest edge of Ione.	11.3	1954-73a, 1962-64, 1967-68, 1971-73	2-23-77 4-21-77 8-31-77	1.56 6.68 .80
12396900 Sullivan Creek	Pend Oreille River	Lat 48°50'47", long 117°17'09", in SW¼SE¼ sec.30, T.39 N., R.44 E., Pend Oreille County, Colville National Forest, 30 ft (9 m) downstream from road bridge, 0.1 mi (0.2 km) upstream from Outlet Creek, 4.0 mi (6.4 km) southeast of Metaline Falls, and at mile 5.0 (8.0 km).	70.2	1912, 1959-72‡, 1973-74a, 1973	2-24-77 4-22-77 8-31-77 9- 8-77	18.2 43.2 27.7 35.2
12398000 Sullivan Creek	Do.....	Lat 48°51'40", long 117°21'50", in SW¼SW¼ sec.22 T.39 N., R.43 E., Pend Oreille County, at road crossing on State Highway 31, 0.5 mi (0.8 km) east of Metaline Falls, and at mile 0.5 (0.8 km).	142	1953-68‡	2-24-77 4-22-77	38.3 53.4
		Deep Creek basin				
12399600 Deep Creek near Northport	Columbia River	Lat 48°55'47", long 117°44'59", in SE¼SW¼ sec.34, T.40 N., R.40 E., Stevens County, 0.5 mi (0.8 km) upstream from mouth, 2.0 mi (3.2 km) northeast of Northport.	191	1972-75‡, 1976a, 1976	2-28-77 4-25-77 8-29-77	23.0 40.0 10.3
		Big Sheep Creek				
12400000 Big Sheep Creek (formerly Sheep Creek)	Columbia River	Lat 48°57'11", long 117°52'33", in SW¼SE¼ sec.20, T.40 N., R.39 E., Stevens County, 0.7 mi (1.1 km) upstream from Gold Creek, 4.6 mi (7.4 km) northwest of Northport.	171	1928, 1929-32‡	8-29-77	42.1
Little Sheep Creek	Big Sheep Creek	Lat 48°59'10", long 117°49'35", in NW¼SE¼ sec.10, T.40 N., R.39 E., Stevens County, at county road bridge at Velvet.	27.2	1929	3- 1-77 4-25-77 8-29-77	2.77 69.1 2.24
12400500 Big Sheep Creek (formerly Sheep Creek)	Columbia River	Lat 48°56'27", long 117°46'51", in NE¼SE¼ sec.25, T.40 N., R.39 E., Stevens County, 0.7 mi (1.1 km) from mouth, and 1.5 mi (2.4 km) north of Northport.	225	1928-29, 1929-42‡, 1948	3- 1-77 4-26-77 8-29-77	38.1 421 32.8
		Kettle River basin				
Lambert Creek	Curlew Creek	Lat 48°46'23", long 118°38'44", in SW¼SE¼ sec.21, T.38 N., R.33 E., Ferry County, at State Highway 21 crossing at Karamin, 500 ft (150 m) above mouth.	18.8	1917-21	3- 7-77 4-26-77 8-23-77	1.38 1.80 .13
Deep Creek	Kettle River	Lat 48°59'02", long 118°12'34", in SE¼SW¼ sec.11, T.40 N., R.36 E., Stevens County, at county road crossing, 0.2 mi (0.3 km) upstream from mouth, 1.0 mi (1.6 km) southeast of Laurier.	31.3	1930-31, 1933-34 1937-39, 1941, 1967, 1970-73	2-28-77 4-28-77 8-23-77	3.25 16.1 0
Boulder Creek	Do.....	Lat 48°50'10", long 118°11'03", in SW¼SE¼ sec.36, T.39 N., R.36 E., Ferry County, at U.S. Highway 395 crossing, 2.3 mi (3.7 km) southeast of Orient.	101	1971-73	2-28-77 4-29-77 8-23-77	11.0 29.6 3.58

‡ Operated as a continuous-record gaging station.
a Operated as a crest-stage gage.
c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Kettle River basin--Continued						
Deadman Creek	Kettle River	Lat 48°42'27", long 118°07'31", in NW¼NW¼ sec.16, T.37 N., R.37 E., Ferry County, at U.S. Highway 395 crossing, 0.7 mi (1.1 km) southeast of Boyds.	61.8	1914-15, 1967, 1971-72	3-16-77 4-29-77 8-22-77	8.26 14.6 2.31
Nancy Creek basin						
12405400 Nancy Creek	Franklin D. Roosevelt Lake	Lat 48°39'19", long 118°06'47", in SE¼ sec.33, T.37 N., R.37 E., Ferry County, at U.S. Highway 395, 4.2 mi (6.8 km) northwest of Kettle Falls.	11.9	1952a, 1954-72a, 1965-67, 1969, 1971-72	3-16-77 4-29-77 8-23-77	1.08 1.46 .24
Sherman Creek basin						
Sherman Creek	Franklin D. Roosevelt Lake	Lat 48°35'25", long 118°11'18", in NE¼SW¼ sec.29, T.36 N., R.37 E., Ferry County, Colville National Forest, 6.5 mi (10.5 km) southwest of Kettle Falls.	102	1972-73	3-16-77 4-28-77 8-22-77	15.0 36.1 6.45
Colville River basin						
12407500 Sheep Creek	Colville River	Lat 48°03'28", long 117°45'04", in SW¼SW¼ sec.34, T.30 N., R.40 E., Stevens County, 45 ft (13.7 m) upstream from railroad trestle over State Highway 231, 0.5 mi (0.8 km) west of Springdale, and at mile 4.9 (7.9 km).	48.2	1953-72‡	3- 2-77 4-25-77 8-31-77	8.19 7.01 5.02
Grouse Creek	Sheep Creek	Lat 48°08'33", long 117°38'40", in NW¼SW¼ sec.33, T.31 N., R.41 E., Spokane County, at county road crossing, 4.4 mi (7.1 km) southwest of Valley.	8.19	1959-60	3- 2-77 4-25-77 8-31-77	.46 .42 .38
12407520 Deer Creek	Colville River	Lat 48°07'06", long 117°47'52", in NW¼NW¼ sec.8, T.30 N., R.40 E., Stevens County, at county road bridge, 2.0 mi (3.2 km) upstream from confluence with Sheep Creek, 5.2 mi (8.4 km) southwest of Valley and at mile 2.0 (3.2 km).	36.0	1959-72‡, 1973a	3- 2-77 4-25-77 8-31-77	7.12 7.91 3.92
12407560 Huckleberry Creek	Do......	Lat 48°12'29", long 117°45'49", in NW¼NW¼ sec.9, T.31 N., R.40 E., Stevens County, at privately owned bridge 3.5 mi (5.6 km) northwest of Valley.	41.8	1959-60	3- 2-77 4-25-77 8-31-77	4.73 4.48 .46
12407580 Cottonwood Creek	Do......	Lat 48°13'23", long 117°42'13", at north end between NE¼ and NW¼ of sec.1, T.31 N., R.40 E., Stevens County, at county road crossing 0.4 mi (0.6 km) from mouth and 4.2 mi (6.8 km) south of Chewelah.	34.1	---	4-27-77 8-31-77	1.60 1.78
East Branch South Fork Chewelah Creek	Chewelah Creek	Lat 48°17'17", long 117°42'52", in NW¼SW¼ sec.12, T.32 N., R.40 E., Stevens County, at road crossing, 0.5 mi (0.8 km) north of Chewelah.	---	1957-58 1960	3- 3-77	1.15
North Fork Chewelah Creek	Do......	Lat 48°17'25", long 117°43'01", in NE¼NE¼ sec.11, Stevens County, at road crossing 0.6 mi (1.0 km) north of Chewelah.	59.6	1957-60	3- 3-77 4-25-77 8-30-77	8.36 11.7 2.80
South Fork Chewelah Creek	Do......	Lat 48°17'25", long 117°42'54", in NE¼NE¼ sec.11, T.32 N., R.40 E., Stevens County, at county road crossing 0.6 mi (1.0 km) north of Chewelah.	---	1957-58	3- 3-77	4.91
12407700 Chewelah Creek	Do......	Lat 48°17'01", long 117°42'30", on line between SE¼ sec.11 and SW¼ sec.12, T.32 N., R.40 E., Stevens County, 10 ft (3.0 m) downstream from small road bridge to highway north of the city park, in northern part of Chewelah, and at mile 2.0 (3.2 km).	94.1	1957-74‡	3- 2-77 4-25-77 8-30-77	14.7 15.2 5.64
12408000 Colville River	Franklin D. Roosevelt Lake	Lat 48°19'11", long 117°49'05", in NW¼NW¼ sec.31, T.33 N., R.40 E., Stevens County, upstream from county road bridge, just downstream from mouth of Blue Creek at town of Blue Creek, 5.5 mi (8.8 km) northwest of Chewelah.	428	1923-24‡, 1926, 1958-59, 1960-65‡, 1975-76	3- 3-77 4-26-77 8-30-77	90.3 56.9 27.2
12408120 Stranger Creek	Colville River	Lat 48°22'20", long 117°51'29", in NE¼SW¼ sec.11, T.33 N., R.39 E., Stevens County, at county road crossing 1.5 mi (2.4 km) northwest of Addy.	42.9	1959-60	3- 3-77 4-26-77 8-30-77	3.94 2.29 .60
12408300 Little Pend Oreille River	Do......	Lat 48°27'58", long 117°44'53", in NW¼NE¼ sec.10, T.34 N., R.40 E., Stevens County, 320 ft (98 m) upstream from abandoned railroad bridge, 0.5 mi (0.8 km) downstream from Bear Creek, 6.2 mi (10.0 km) east of Arden, 9.2 mi (14.8 km) southeast of Colville, and at mile 7.0 (11.3 km).	132	1958-75‡, 1976a	3- 3-77 4-26-77 6- 8-77 8-30-77	21.3 36.7 21.1 16.4

‡ Operated as a continuous-gaging station.

a Operated as a crest-stage gage.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Colville River basin--Continued				
12408420 Haller Creek	Colville River	Lat 48°28'02", long 117°54'24", in SW¼SW¼ sec.4, T.34 N., R.39 E., Stevens County, 10 ft (3 m) downstream from county road bridge, 1.5 mi (2.4 km) northwest of Arden.	37.0	1959-70‡, 1971a	3- 3-77 4-26-77 8-30-77	2.59 2.05 .41
12408500 Mill Creek	Do......	Lat 48°34'44", long 117°51'56", in SW¼SW¼ sec.35, T.36 N., R.39 E., Stevens County, 3.0 mi (4.8 km) northeast of Colville, 5.3 mi (8.5 km) downstream from North Fork and at mile 10.9 (17.5 km).	83.0	1939-72‡, 1973a	3- 3-77 4-26-77 8-30-77	12.8 22.2 5.21
		Barnaby Creek basin				
Barnaby Creek	Franklin D. Roosevelt Lake	Lat 48°26'04", long 118°13'31", in SW¼NE¼ sec.23, T.34 N., R.36 E., Ferry County, Colville Indian Reservation, 0.2 mi (0.3 km) upstream from mouth, 2.6 mi (4.2 km) west of Rice.	45.9	1914, 1919, 1972-73	3-16-77 4-28-77 8-22-77	5.53 2.14 .75
		Hall Creek basin				
Lynx Creek	Hall Creek	Lat 48°20'41", long 118°15'52", in NW¼SE¼ sec.21, T.33 N., R.36 E., Ferry County, Colville Indian Reservation, at county road crossing, 0.2 mi (0.3 km) upstream from mouth, 4.6 mi (7.4 km) northwest of Inchelium.	---	---	4-28-77 8-22-77	1.38 0
12409500 Hall Creek	Franklin D. Roosevelt Lake	Lat 48°18'41", long 118°12'39", in SE¼NW¼ sec.1, T.32 N., R.36 E., Ferry County, Colville Indian Reservation, 1,000 ft (300 m) upstream from county road crossing, 1.0 mi (1.6 km) northwest of Inchelium.	160	1913-29‡, 1967, 1973	3-16-77 4-28-77 8-22-77	18.4 14.6 3.74
		Upper Columbia River basin				
Stranger Creek	Franklin D. Roosevelt Lake	Lat 48°15'52", long 118°16'38", in NW¼NW¼ sec.21, T.32 N., R.36 E., Ferry County, Colville Indian Reservation, at county road crossing, 600 ft (183 m) southeast of Meteor, 4.7 mi (7.6 km) southwest of Inchelium.	50.9	1916, 1922, 1925, 1926-28	3-17-77 4-28-77 8-22-77	3.26 1.25 3.97
		Harvey Creek basin				
Harvey Creek	Franklin D. Roosevelt Lake	Lat 48°09'36", long 118°08'17", in SW¼NE¼ sec.27, T.31 N., R.37 E., Stevens County, at county road crossing, 1.5 mi (2.4 km) northeast of Cedonia.	---	---	3-17-77 4-29-77 8-31-77	2.78 0 0
		Wilmont Creek basin				
Wilmont Creek	Franklin D. Roosevelt Lake	Lat 48°04'34", long 118°19'29", in NW¼SE¼ sec.30, T.30 N., R.36 E., Ferry County, Colville Indian Reservation, at road crossing, 5.9 mi (9.5 km) west of Fruitland.	51.1	1967, 1971-74	3-17-77 4-29-77 8-24-77	5.10 1.56 0
		Nine Mile Creek basin				
Nine Mile Creek	Franklin D. Roosevelt Lake	Lat 48°02'50", long 118°26'06", in NW¼NW¼ sec.5, T.29 N., R.35 E., Ferry County, Colville Indian Reservation, 11.2 mi (18.0 km) west of Fruitland.	106	1971-74	3-17-77 4-29-77 8-24-77	5.98 5.63 2.68
		Spokane River basin				
12419495 Spokane River	Columbia River	Lat 47°41'55", long 117°02'36", in N½N½ sec.6, T.25 N., R.46 E., Spokane County, 2.1 mi (3.4 km) southeast of Moab (Newman Lake post office), 0.15 mi (0.24 km) downstream from the Idaho-Washington line at U.S. Highway 10 crossing.	b3,870	1906	2-16-77 5- 5-77 7-19-77 7-21-77	1,340 6,009 58.3 59.8
Spokane River	Do......	Lat 47°40'43", long 117°10'33", in SE¼NE¼ sec.12, T.25 N., R.44 E., Spokane County, just below Flora Road at mile 89 (143 km).	b4,150	---	7-21-77	26.3
Do......	Do......	Lat 47°41'32", long 117°14'03", in NW¼SW¼ sec.3, T.25 N., R.44 E., Spokane County, at State Highway 290 crossing, 0.5 mi (0.8 km) downstream from former station (12421000), 2.3 mi (3.7 km) east of Millwood and at mile 85.3 (137 km).	b4,200	1972-73	7-21-77	289
Little Hangman Creek (formerly North Fork Hangman Creek)	Hangman Creek	Lat 47°13'35", long 117°04'18", in SW¼SE¼ sec.13, T.20 N., R.45 E., Whitman County, at State Highway 27 in Tekoa, 0.2 mi (0.3 km) above mouth.	d64.6	1958	3- 1-77 4-22-77 8-26-77	4.20 1.00 .13

‡ Operated as a continuous-record gaging station.
a Operated as a crest-stage site.
b Approximately.
d Includes 10.9 mi² in Washington.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Spokane River basin--Continued				
Hangman Creek[f] (formerly Latah Creek)	Spokane River	Lat 47°13'35", long 117°04'46", in SW¼SW¼ sec.13, T.20 N., R.45 E., Whitman County, above sewage treatment plant at Tekoa, 0.25 mi (0.40 km) below Little Hangman Creek.	----	1967	4-22-77 8-26-77	7.22 .25
Hangman Creek (formerly Latah Creek)	Do......	Lat 47°13'36", long 117°05'00", in SW¼SW¼ sec.13, T.20 N., R.45 E., Whitman County, below sewage treatment plant at Tekoa, 0.3 mi (0.5 km) downstream from Little Hangman Creek	g230	----	2-28-77	16.6
12425500 Deep Creek	Do......	Lat 47°40'57", long 117°40'34", in SW¼NE¼ sec.7, T.25 N., R.41 E., Spokane County, at county road crossing, 3.0 mi (4.8 km) northeast of Deep Creek, 10 mi (16.1 km) west of Spokane.	77.3	1949-50‡	2-23-77 4-19-77 9- 1-77	3.90 3.28 .41
Deep Creek	Do......	Lat 47°44'59", long 117°32'53", in NW¼SE¼ sec.18, T.26 N., R.42 E., Spokane County, 0.3 mi (0.5 km) upstream from Coulee Creek, and 1.6 mi (2.8 km) south of Nine Mile Falls.	115	1959	3- 1-77 9- 1-77	0 0
Coulee Creek	Deep Creek	Lat 47°44'37", long 117°34'38", in NW¼NW¼ sec.24, T.26 N., R.41 E., Spokane County, at Seven Mile road crossing 1.8 mi (2.9 km) upstream from mouth and 7 mi (11 km) north of Airway Heights.	48.0	1949-51	3-16-77 4-22-77 9- 1-77	0 0 0
Dry Creek	Little Spokane River	Lat 47°59'11", long 117°17'39", in NW¼NE¼ sec.30, T.29 N., R.44 E., Spokane County, at county road crossing 2.1 mi (3.4 km) northeast of Milan.	20.8	1948-49	2-24-77 4-18-77 8-29-77	2.49 2.21 1.81
West Branch Little Spokane River	Little Spokane River	Lat 47°59'50", long 117°20'55", in SE¼NE¼ sec.22, T.29 N., R.43 E., Spokane County, at road crossing, 6.8 mi (10.9 km) north of Chattaroy.	----	----	9- 6-77	.47
Dragoon Creek	Do......	Lat 47°53'10", long 117°27'52", on east line NW¼ sec.35, T.28 N., R.42 E., Spokane County, at Dalton road crossing 5.0 mi (8.0 km) west of Chattaroy.	136	1948-49	2-25-77	32.4
Little Chamokane Creek	Spokane River	Lat 47°51'13", long 117°52'44", in NE¼SW¼ sec.10, T.27 N., R.39 E., Stevens County, Spokane Indian Reservation, 0.3 mi (0.5 km) from mouth and 1.7 mi (2.7 km) northwest of town of Long Lake.	----	----	4- 1-77 4-27-77 8-31-77	2.05 .41 .48
		Hawk Creek basin				
Hawk Creek	Franklin D. Roosevelt Lake	Lat 47°48'55", long 118°18'55", in NE¼NE¼ sec.30, T.27 N., R.36 E., Lincoln County, at county road crossing, 2.7 mi (4.3 km) above mouth, and 4.6 mi (7.4 km) east of Lincoln.	----	----	3-17-77 4-29-77 9- 2-77	12.4 10.2 5.59
		Sanpoil River basin				
Sanpoil River	Franklin D. Roosevelt Lake	Lat 48°39'04", long 118°42'16", in NW¼NE¼ sec.5, T.36 N., R.33 E., Ferry County, at private road bridge just upstream from an unnamed tributary, 1.7 mi (2.7 km) upstream from Granite Creek, 1.5 mi (2.4 km) east of Republic.	90.5	1975-76	3- 7-77 4-26-77 8-23-77	3.09 9.27 0
Do......	Do......	Lat 48°37'17", long 118°43'39", in SE¼NW¼ sec.18, T.36 N., R.33 E., Ferry County, at county road bridge, 0.8 mi (1.3 km) downstream from Granite Creek, 1.8 mi (2.9 km) south of Republic.	169	1975-76	3- 7-77 4-26-77 8-23-77	7.56 16.8 .78
12433890 Sanpoil River	Columbia River	Lat 48°28'38", long 118°43'41", in SE¼SW¼ sec.1, T.34 N., R.32 E., Ferry County, Colville Indian Reservation, at bridge on State Highway 21, 25 ft (7.6 m) upstream from Thirteenmile Creek, 2.1 mi (3.4 km) upstream from from West Fork Sanpoil River, 11.8 mi (19.0 km) south of Republic, and at mile 45.5 (73.2 km).	263	1972-74‡, 1975a	3- 7-77 4-26-77 8-23-77	9.48 22.0 1.09
Lost Creek	Sanpoil River	Lat 48°29'18", long 119°00'53", in NE¼SW¼ sec.36, T.35 N., R.30 E., Okanogan County, Okanogan National Forest, 4.2 mi (6.8 km) southwest of Aeneas, 5.6 mi (9.0 km) from mouth.	80.2	1920-21	4-26-77 8-23-77	12.9 .64
12434110 West Fork Sanpoil River	Columbia River	Lat 48°27'33", long 118°44'57", in NE¼NW¼ sec.11, T.34 N., R.32 E., Ferry County, Colville Indian Reservation at bridge on State Highway 21, 13.9 mi (22.4 km) south of Republic, and at mile 0.5 (0.8 km).	308	1972-74‡, 1975a	3- 7-77 4-26-77 8-23-77	13.2 28.1 .57
12434500 Sanpoil River	Do......	Lat 48°06'26", long 118°41'51", in NE¼NE¼ sec.18, T.30 N., R.33 E., Ferry County, Colville Indian Reservation on right bank, 0.3 mi (0.5 km) upstream from Brush Creek, 2.2 mi (3.5 km) north of Keller, and at mile 14.1 (22.7 km).	880	1932-53‡, 1956-59, 1972-74‡, 1975a	3- 7-77 4-26-77 8-26-77	44.2 87.2 9.72

‡ Operated as a continuous-record gaging station.

a Operated as a crest-stage gage.

f Published in 1967 as North Fork Hangman Creek.

g Includes 19.1 mi in Washington.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Nespelem River basin				
12437505 Nespelem River	Columbia River	Lat 48°09'55", long 118°58'46", on south line SE¼SE¼ sec.24, T.31 N., R.30 E., Okanogan County, Colville Indian Reservation, at county bridge, at Nespelem, 0.2 mi (0.3 km) downstream from millpond and 3.9 mi (6.3 km) upstream from Little Nespelem River.	123	1972-74‡, 1975a	3-16-77 4-26-77 8-26-77	13.6 7.97 5.73
Nespelem River	Do......	Lat 48°07'40", long 119°01'32", in NW¼SE¼ sec.3, T.30 N., R.30 E., Okanogan County, Colville Indian Reservation, at county road crossing, 0.8 mi (1.3 km) upstream from mouth, 3.5 mi (5.6 km) southwest of Nespelem.	226	1913, 1955	3-16-77 4-26-77 8-26-77	22.5 11.7 5.01
		Foster Creek basin				
12437950 East Fork Foster Creek tributary	Foster Creek	Lat 47°57'00", long 119°17'50", in SE¼ sec.1, T.28 N., R.25 E., Douglas County, at State Highway 17 crossing, 3.3 mi (5.6 km) southeast of Bridgeport.	4.75	1952a	2-23-77 4-22-77 8-29-77	0 0 0
		Okanogan River basin				
12442000 Toats Coulee Creek	Sinlahekin Creek	Lat 48°50'01", long 119°41'32", in NE¼SE¼ sec.33, T.39 N., R.25 E., Okanogan County, 600 ft (183 m) upstream from Deer Creek, 1,800 ft (549 m) upstream from intake of Whitestone Irrigation Canal and 2.8 mi (4.5 km) northwest of Loomis	130	1920-26‡, 1957-70‡, 1971-73a, 1975	3- 2-77 4-20-77 8-24-77	6.38 8.46 5.61
12442300 Sinlahekin Creek	Palmer Lake	Lat 48°51'30", long 119°38'53", in SE¼SE¼ sec.26, T.39 N., R.25 E., Okanogan County, at road crossing 400 ft (122 m) upstream from Chopaka Creek, 2 mi (3 km) upstream from mouth, and 2.2 mi (3.5 km) north of Loomis.	236	1957-63‡	3- 2-77 4-20-77 8-24-77	17.6 5.80 3.62
Palmer Creek	Similkameen River	Lat 48°55'25", long 119°39'17", in SW¼SE¼ sec.33, T.40 N., R.25 E., Okanogan County, at bridge 0.2 mi (0.3 km) above mouth, and 3.2 mi (5.2 km) southwest of Nighthawk.	298	1929-44, 1961-62, 1967, 1970, 1973	10-31-63 3- 2-77 4-20-77 8-23-77	c.16 30.8 21.7 1.66
12443600 Similkameen River	Okanogan River	Lat 48°56'05", long 119°26'27", in NE¼SW¼ sec.28, T.40 N., R.27 E., Okanogan County, at Twelfth Avenue bridge in Oroville.	3,580	1929-30, 1933, 1937, 1939-40, 1943-44, 1975-76	3- 2-77 4-20-77 8-23-77	539 754 138
Antoine Creek	Do......	Lat 48°43'34", long 119°24'29", in SE¼SE¼ sec.27, T.38 N., R.27 E., Okanogan County, at U.S. Highway 97, 0.2 mi (0.3 km) above mouth, and 2.1 mi (3.4 km) south of Ellisford.	——	——	3- 2-77 4-19-77 8-23-77	1.90 .63 0
Bonaparte Creek	Do......	Lat 48°42'05", long 119°26'29", in NE¼SW¼ sec.16, T.37 N., R.27 E., Okanogan County, at U.S. Highway 97 crossing at Tonasket, 0.3 mi (0.5 km) upstream from the mouth.	148	1912	3- 2-77 4-19-77 8-23-77	4.28 3.21 e.02
Aeneas Creek	Do......	Lat 48°39'34", long 119°28'42", in NE¼SE¼ sec.31, T.37 N., R.27 E., Okanogan County, at county road (old U.S. Highway 97) crossing 3.5 mi (5.6 km) southwest of Tonasket.	——	——	3- 2-77 4-20-77 8-23-77	1.01 2.33 2.41
Johnson Creek	Do......	Lat 48°29'13", long 119°32'05", in SW¼NW¼ sec.35, T.35 N., R.26 E., Okanogan County, 1.4 mi (2.2 km) southwest of Riverside, and 1.5 mi (2.4 km) upstream from the mouth.	——	——	3- 1-77 4-20-77 8-26-77	1.46 2.24 1.23
Omak Creek	Do......	Lat 48°22'13", long 119°26'32", in SW¼SE¼ sec.9, T.33 N., R.27 E., Okanogan county, Colville Indian Reservation, 6.5 mi (10.5 km) southeast of Omak.	——	——	3-12-76 7-21-76 7-22-76 8-05-76 8-10-76 8-17-76 8-31-76 9-11-76 9-15-76 9-29-76 10-13-76 10-27-76 11-09-76 11-10-76 11-23-76 12-07-76 12-21-76	c3.61 c3.92 c4.17 c4.07 c5.44 c6.46 c3.72 c3.71 c3.54 c3.26 4.22 5.67 5.81 5.68 6.48 5.08 5.15

‡ Operated as a continuous-record gaging station.
a Operated as a crest-stage gage.
c Not previously published.
e Estimated.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Okanogan River basin--Continued				
Omak Creek (continued)	Okanogan River				1-04-77 1-18-77 2-01-77 3-01-77 3-30-77 4-26-77 5-24-77 6-22-77 7-19-77 8-16-77 8-28-77 9-13-77	4.23 5.29 4.91 6.90 7.27 7.22 6.63 3.31 1.04 .08 .94 .31
Omak Creek	Do......	Lat 48°21'59", long 119°26'46", in NW¼NW¼ sec.16, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 6.5 mi (10.5 km) southeast of Omak.	---	---	7-12-76 7-21-76 8- 5-76 8-17-76 8-31-76 9-15-76 9-29-76 10-13-76 10-27-76 11- 9-76 11-23-76 12- 7-76 12-22-76 1- 4-77 2- 1-77 3- 1-77 3-30-77 4-26-77 5-24-77 6-22-77 7-19-77 8-16-77 8-28-77 9-13-77	c3.81 c4.19 c3.94 c6.36 c3.95 c3.70 c3.12 4.13 5.74 5.24 5.87 5.02 5.00 6.46 5.56 6.06 6.63 5.42 6.87 3.28 .56 0 .33 .19
Do......	Do......	Lat 48°22'09", long 119°26'53", in SW¼SW¼ sec.9, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 6.3 mi (10.1 km) southeast of Omak.	---	---	7-21-76 8- 5-76 8-17-76 8-31-76 9-16-76 9-29-76 10-13-76 10-27-76 11- 9-76 11-23-76 12- 7-76 12-22-76 1- 4-77 2- 1-77 3- 1-77 3-30-77 4-26-77 5-24-77 6-22-77 7-19-77 8-16-77 8-28-77 9-13-77	c3.39 c3.83 c6.31 c3.57 c3.56 c2.63 3.56 5.21 5.10 5.33 6.74 5.08 5.03 4.68 7.20 6.59 6.57 7.48 3.15 .56 0 .23 0
Do......	Do......	Lat 48°22'26", long 119°27'05", in NE¼SE¼ sec.8, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 6.0 mi (9.7 km) southeast of Omak.	---	---	7-21-76 8- 5-76 8-17-76 8-31-76 9-16-76 9-29-76 10-13-76 10-27-76 11- 9-76 11-23-76 12- 7-76 12-22-76 1- 4-77 2- 1-77 3- 1-77 3-30-77 4-26-77 5-24-77 6-22-77 7-19-77 8- 6-77 8-28-77 9-13-77	c2.73 c3.26 c6.15 c3.13 c3.36 c2.63 3.52 3.48 4.77 5.18 4.63 6.01 4.03 4.68 6.24 6.34 5.67 7.09 2.74 .27 0 0 0

c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Okanogan River basin--Continued				
Omak Creek	Okanogan River	Lat 48°22'38", long 119°27'12", in SE¼SE¼ sec.8, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 5.7 mi (9.2 km) southeast of Omak.	---	---	7-21-76	c2.50
					8- 3-76	c3.37
					8-17-76	c6.19
					8-31-76	c2.89
					9-29-76	c2.63
					10-13-76	3.25
					10-27-76	5.10
					11- 9-76	4.69
					11-23-76	5.03
					12- 7-76	4.31
					12-22-76	4.42
					1- 4-77	3.34
					2- 1-77	4.41
					3- 1-77	6.42
					3-30-77	5.85
					4-26-77	5.51
					5-24-77	6.78
					6-22-77	2.56
					7-19-77	.14
					8-16-77	0
					8-28-77	0
					9-13-77	0
Do......	Do......	Lat 48°22'48", long 119°27'16", in NE¼NE¼ sec.8, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 250 ft (76.0 m) upstream from pump and 5.7 mi (9.2 km) southeast of Omak.	---	---	7-21-76	c2.60
					8- 3-76	c3.28
					8-17-76	c6.02
					8-31-76	c3.12
					9-29-76	c2.48
					10-13-76	3.35
					10-27-76	5.29
					11- 9-76	4.68
					11-23-76	5.52
					12- 7-76	4.70
					12-22-76	4.60
					1- 4-77	4.49
					2- 1-77	4.58
					3- 1-77	6.58
					3-30-77	6.39
					4-26-77	6.22
					5-24-77	7.42
					6-22-77	2.50
					7-19-77	0
					8-16-77	0
					8-28-77	0
					9-13-77	0
Do......	Do......	Lat 48°22'55", long 119°27'16", in NE¼NE¼ sec.8, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 75 ft (23 m) downstream from pump and 5.7 mi (9.2 km) southeast of Omak.	---	---	8- 3-76	c3.29
					8-17-76	c6.13
					8-31-76	c2.97
					9-29-76	c2.26
					10-13-76	3.22
					10-27-76	4.92
					11- 9-76	4.34
					11-23-76	5.35
					12- 7-76	6.13
					12-22-76	4.96
					1- 4-77	3.35
					1-18-77	6.73
					2- 1-77	4.89
					3- 1-77	8.46
					3-30-77	5.72
					4-26-77	5.81
					5-24-77	7.36
					6-22-77	2.23
					7-19-77	0
					8-16-77	0
					8-28-77	0
					9-13-77	0
No Name Creek	Omak Lake	Lat 48°20'17", long 119°26'28", in SE¼SE¼ sec.21, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 8.0 mi (12.9 km) southeast of Omak.	---	---	5-12-76	c.68
					7-22-76	c.37
					8- 6-76	c.30
					8-18-76	c1.88
					9- 1-76	c1.85
					9-15-76	c1.96
					9-28-76	c1.73
					10-13-76	.17
					10-28-76	.19
					11-10-76	.22
					11-24-76	.20
					12- 8-76	.23
					12-21-76	.22
					1- 5-77	.30
					1-18-77	.32
					2- 2-77	.37
					3- 2-77	.43

c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
Okanogan River basin--Continued						
No Name Creek (continued)	Omak Lake				3-31-77	0.46
					4-27-77	1.90
					5-25-77	1.32
					6-21-77	1.72
					7-20-77	1.22
					8-17-77	1.21
					8-29-77	.94
					9-13-77	1.23
Do......	Do......	Lat 48°20'53", long 119°26'33", in SE¼NW¼ sec.21, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 0.15 mi (0.24 km) south of Walton's driveway and 8.15 mi (13.1 km) southeast of Omak.	---	---	7-22-76	c.44
					8- 6-76	c.38
					8-18-76	c2.09
					9- 1-76	c2.31
					9-15-76	c2.56
					9-28-76	c2.43
					10-13-76	.20
					10-28-76	.23
					11-10-76	.28
					11-24-76	.34
					12- 8-76	.36
					12-21-76	.33
					1- 5-77	.47
					1-18-77	.41
					2- 2-77	.44
					3- 2-77	.48
					3-31-77	.58
					4-27-77	2.32
					5-25-77	1.45
					6-21-77	1.95
					7-20-77	1.49
					8-17-77	1.40
					8-29-77	1.19
					9-13-77	1.30
Do......	Do......	Lat 48°20'25", long 119°26'26", in SE¼SW¼ sec.21, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 75 ft (22.9 m) downstream from diversion outlet gage and 8.4 mi (13.5 km) southeast of Omak.	---	---	8- 6-76	c.06
					8-18-76	c2.30
					9- 1-76	c1.40
					9-15-76	c2.17
					9-28-76	c2.04
					10-13-76	.27
					10-28-76	.29
					11-10-76	.32
					11-24-76	.35
					12- 8-76	.42
					12-21-76	.38
					1- 5-77	.44
					2- 2-77	.49
					3- 2-77	.59
					3-31-77	.58
					4-27-77	.83
					5-25-77	1.78
					6-21-77	1.62
					7-20-77	1.36
					8-17-77	1.04
					8-29-77	.88
					9-13-77	.99
Do......	Do......	Lat 48°19'51", long 119°26'04", in NW¼SE¼ sec.28, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation, 9.4 mi (15.1 km) southeast of Omak.	---	---	8-18-76	c2.13
					9- 1-76	c.44
					9- 8-76	c1.94
					9-14-76	c2.22
					9-15-76	c1.89
					9-28-76	c1.70
					9-29-76	c1.55
					10-13-76	.20
					10-28-76	.29
					11-10-76	.29
					11-24-76	.28
					12- 8-76	.36
					12-21-76	.32
					1- 5-77	.36
					1-18-77	.48
					2- 2-77	.54
					3- 2-77	.70
					3-31-77	.66
					4-27-77	1.38
					5-25-77	1.39
					6-21-77	1.25
					7-20-77	.95
					8-17-77	.83
					8-29-77	.77
					9-13-77	.79
					9-14-77	1.15

c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Okanogan River basin--Continued				
No Name Creek	Omak Lake	Lat 48°19'39", long 119°26'03", in NE¼SE¼ sec.28, T.33 N., R.27 E., Okanogan County, Colville Indian Reservation.	---	---	3-12-76 10-28-76 11-10-76 11-24-76 12- 8-76 12-21-76 1- 5-77 2- 2-77 3- 2-77 3-31-77 4-27-77 5-25-77 6-21-77 7-20-77 8-17-77 8-29-77 9-13-77	c0.79 .10 .09 .15 .20 .23 .24 .29 .41 .47 .95 1.32 1.14 .34 .14 .22 .67
Salmon Creek	Okanogan River	Lat 48°21'48", long 119°35'17", in NW¼NE¼ sec.17, T.33 N., R.26 E., Okanogan County, at county road crossing in Okanogan, and 0.5 mi (0.8 km) upstream from mouth.	153	1948	2-25-77 4-20-77 8-26-77	0 0 0
Loup Loup Creek	Do......	Lat 48°16'58", long 119°42'27", in SW¼SW¼ sec.9, T.32 N., R.25 E., Okanogan County, at county road crossing at Malott, and 0.2 mi (0.3 km) upstream from mouth.	64.2	1974	2-25-77 4-20-77 8-26-77	.81 0 0
		Methow River basin				
Early Winters Creek	Methow River	Lat 48°35'55", long 120°26'31", in NE¼NE¼ sec.26, T.10 N., R.19 E., Okanogan County, Okanogan National Forest, at bridge, at Early Winters Ranger Station, 0.3 mi (0.5 km) from the mouth and 1.7 mi (2.7 km) northwest of Mazama on the North Cascade Highway (State Highway 20). Note.--New bridge is at slightly different location than Mazama quad sheet indicates.	---	1975-76	2-24-77 4-21-77 8-23-77	18.5 47.9 10.1
12447374 Methow River	Columbia River	Lat 48°35'23", long 120°24'20", in NE¼SE¼ sec.25, T.36 N., R.19 E., Okanogan County, Okanogan National Forest, at State Highway 20 bridge, 0.2 mi (0.3 km) southwest of Mazama at river mile (65.3 (105.1 km).	363	1942, 1967, 1970-72, 1975-76	2-24-77 4-21-77 8-23-77	0 26.3 43.4
12447385 Methow River	Do......	Lat 48°32'40", long 120°19'20", in SW¼SE¼ sec.10, T.35 N., R.20 E., Okanogan County, Okanogan National Forest at Weeman Bridge on State Highway 20, 5 mi (8 km) southeast of Mazama, 7.6 mi (12.2 km) downstream from Early Winters Creek and at mile 59.7 (96.1 km).	403	1944, 1975-76	2-24-77 4-21-77 8-23-77	13.4 11.2 58.7
12447400 Doe Creek	Chewack River	Lat 48°40'41", long 120°07'59", in NE¼ sec.30, T.37 N., R.22 E., Okanogan County, Okanogan National Forest, 14 mi (22.5 km) north of Winthrop and 32 mi (51.5 km) west of Tonasket.	3.80	1956, 1958-59, 1966-68, 1957-75a	2-24-77 4-21-77 8-23-77	.07 .07 .04
Eightmile Creek above Eightmile ditch	Do......	Lat 48°36'15", long 120°09'47", in NW¼SW¼ sec.24, T.36 N., R.21 E., Okanogan County, Okanogan National Forest, 400 ft (120 m) upstream from mouth, 9 mi (14 km) north of Winthrop.	46.2	---	4-21-77 8-23-77	10.9 13.3
Eightmile ditch	Do......	Lat 48°36'15", long 120°09'47", in NW¼SW¼ sec.24, T.36 N., R.21 E., Okanogan County, Okanogan National Forest below fish screen, 400 ft (120 m) upstream from mouth, 9 mi (14 km) north of Winthrop.	---	1942	4-21-77 8-23-77	6.15 7.29
Eightmile Creek below Eightmile ditch	Do......	Lat 48°36'15", long 120°09'47", in SW¼SW¼ sec.24, T.36 N., R.21 E., Okanogan County, Okanogan National Forest 400 ft (120 m) upstream from mouth, 9 mi (14 km) north of Winthrop.	46.2	1920, 1971, 1973	2-24-77 4-21-77 8-23-77	11.5 4.74 6.00
Boulder Creek	Do......	Lat 48°34'43", long 120°09'49", in SW¼NW¼ sec.36, T.36 N., R.21 E., Okanogan County, Okanogan National Forest, 0.5 mi (0.8 km) upstream from mouth and 7.8 mi (12.6 km) north of Winthrop.	81.0	1920-21, 1926, 1971, 1973	2-24-77 4-21-77 8-23-77	2.23 7.66 1.93
12448000 Chewack River	Methow River	Lat 48°28'38", long 120°11'08", in SW¼NW¼ sec.2, T.34 N., R.21 E., Okanogan County, at State Highway 20 bridge at Wintrhop, 0.2 mi (0.3 km) upstream from the mouth.	525	1911, 1912-13‡, 1915, 1919, 1948, 1967, 1970-71, 1973, 1975-76	2-24-77 4-21-77 8-23-77	48.4 33.2 26.7

‡ Operated as a continuous-record gaging station.
a Operated as a crest-stage gage.
c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Methow River basin--Continued				
12448500 Methow River	Columbia River	Lat 48°28'27", long 120°10'33", in NE¼SW¼ sec.2, T.34 N., R.21 E., Okanogan County, at State Highway 20 bridge, 0.4 mi (0.6 km) downstream from Chewack River and at mile 49.7 (80.0 km).	1,007	1911-12‡, 1948, 1971-72	8-13-71 10- 5-71 12- 1-71 1-11-72 4- 6-72 5-25-72 6- 1-72 6- 3-72 7-12-72 2-24-77 4-21-77 8-23-77	c572 c295 c296 c253 c2,000 c6,930 c19,700 c13,800 c2,970 181 170 180
		Chelan River basin				
12451500 Railroad Creek	Lake Chelan	Lat 48°11'45", long 120°35'50", in sec.9, T.31 N., R.18 E., Chelan County, Wenatchee National Forest, 0.5 mi (0.8 km) upstream from mouth and 0.5 mi (0.8 km) southwest of Lucerne.	64.8	1910-13, 1926-57‡	7-26-77 9- 9-77	232 112
12451610 Falls Creek	Do......	Lat 48°05'08", long 120°19'24", in SE¼NW¼ sec.22, T.30 N., R.20 E., Chelan County, Wenatchee National Forest, 150 ft (46 m) above diversion dam, 3.0 mi (4.8 km) upstream from mouth, and 16 mi (26 km) northwest of Manson.	4.77	1960-69	2-23-77 4-22-77 8-24-77	.66 .92 h.78
12451620 Grade Creek	Do......	Lat 48°03'36", long 120°15'26", in SE¼SW¼ sec.30, T.30 N., R.21 E., Chelan County, Wenatchee National Forest, at road crossing 13 mi (21 km) northwest of Manson.	8.45	1960-69‡, 1973	2-23-77 4-22-77 8-24-77 9- 9-77	1.40 1.98 .51 1.23
Poison Creek	Do......	Lat 48°02'06", long 120°13'06", in SE¼NW¼ sec.4, T.29 N., R.21 E., Chelan County, Wenatchee National Forest, 10.7 mi (17.2 km) northwest of Manson.	5.14	1961-68 1973	9- 9-77	.38
12451660 Mitchell Creek	Do......	Lat 47°59'45", long 120°09'34", in NW¼SW¼ sec.24, T.29 N., R.21 E., Chelan County, at road crossing 7.5 mi (12.1 km) north of Manson.	9.55	1960-69 1973	2-23-77 4-22-77 8-24-77 9- 9-77	.54 .53 .16 .22
		Columbia River basin				
Byrd Canyon	Columbia River	Lat 47°44'59", long 120°13'12", in SE¼SE¼ sec.17, T.26 N., R.21 E., Chelan County, 0.4 mi (0.6 km) above mouth, and 5.1 mi (8.2 km) north of Entiat.	---	---	7-25-77	8,420
McKinstry Canyon	Do......	Lat 47°44'05", long 120°13'43", in NW¼SE¼ sec.20, Chelan County, 0.3 mi (0.5 km) above mouth, and 4.0 mi (6.4 km) north of Entiat.	1.53	---	6-13-77	4,810
		Entiat River basin				
Mad River	Entiat River	Lat 47°44'17", long 120°22'02", in N½SE¼ sec.19, T.26 N., R.20 E., Chelan County, at Ardenvoir, 0.3 mi (0.5 km) above mouth.	92.4	1912, 1967, 1970, 1973	3- 1-77 4-28-77 8-24-77	30.9 115 14.5
Ringstead Canyon	Do......	Lat 47°42'52", long 120°19'46", in NW¼NE¼ sec.33, T.26 N., R.20 E., Chelan County, 0.2 mi (0.3 km) above mouth, 0.3 mi (0.5 km) upstream from Crum Canyon, and 2.4 mi (3.9 km) southeast of Ardenvoir.	.56	---	6-13-77	1,260
Crum Canyon	Do......	Lat 47°42'39", long 120°19'00", in SE¼NW¼ sec.34, T.26 N., R.20 E., Chelan County, 0.2 mi (0.3 km) downstream from North Fork Crum Canyon, 0.6 mi (1.0 km) above mouth, and 3.0 mi (4.8 km) southeast of Ardenvoir.	8.39	---	6-13-77	5,050
12452990 Entiat River	Columbia River	Lat 47°39'48", long 120°14'58", in NW¼SE¼ sec.18, T.25 N., R.21 E., Chelan County, at bridge 1.2 mi (1.9 km) west of Entiat High School and at mile 1.5 (2.4 km)	419	1971-72, 1975-76	10- 9-75 12-12-75 1-30-76 3-22-76 5-20-76 3- 1-77 8-24-77	c148 c828 c355 c269 c1,790 136 115
		Pine Canyon Creek				
Pine Canyon Creek	Columbia River	Lat 47°40'19", long 120°06'41", in SW¼SW¼ sec.8, T.25 N., R.22 E., Douglas County, 2.5 mi (4.0 km) northwest of Waterville.	11.1	1947-48	2-28-77 4-28-77 8-25-77	0.20 .20 .10

‡ Operated as a continuous-record gaging station.
c Not previously published.
h Diversion unused.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wenatchee River basin				
White River	Wenatchee Lake	Lat 47°57'50", long 120°56'35", in SW¼ sec.35, T.29 N., R.15 E., Chelan County, Wenatchee National Forest, at road crossing 10.6 mi (17.1 km) northwest of Telma at mile 15.3 (24.6 km).	66.3	1970, 1973, 1975-76	6-30-77 9-20-77	352 139
Panther Creek	White River	Lat 47°56'24", long 120°55'41", in E½ sec.11, T.28 N., R.15 E., Chelan County, Wenatchee National Forest, 8.8 mi (14.2 km) northwest of Telma, and 100 ft (30 m) upstream from mouth.	19.1	1911, 1975-76	6-28-77 9-20-77	44.9 13.2
Napeequa River	Do......	Lat 47°55'17", long 120°53'38", in SW¼SE¼ sec.18, T.28 N., R.16 E., Chelan County, 6.8 mi (10.9 km) northwest of Telma, and 200 ft (61 m) upstream from mouth.	40.0	1911, 1975-76	6-28-77 9-20-77	260 108
Canyon Creek	Do......	Lat 47°54'27", long 120°53'38", in SW¼SE¼ sec.19, T.28 N., R.16 E., Chelan County, Wenatchee National Forest, 6.0 mi (9.7 km) northwest of Telma, and about 500 ft (150 km) upstream from mouth.	4.27	1975-76	6-28-77 9-20-77	4.48 1.13
Sears Creek	Do......	Lat 47°53'10", long 120°53'13", in E½NE¼ sec.31, T.28 N., R.16 E., Chelan County, Wenatchee National Forest, at road crossing 4.8 mi (7.7 km) northeast of Telma, and 0.3 mi (0.5 km) upstream from mouth.	.75	1975-76	6-28-77 9-20-77	.96 .35
Little Wenatchee River	Wenatchee Lake	Lat 47°55'08", long 121°05'13", in NE¼ sec.14, T.28 N., R.13 E., Chelan County, Wenatchee National Forest, at bridge 15.2 mi (24.5 km) northwest of Telma, and 0.5 mi (0.8 km) upstream from Cady Creek.	10.9	1975-76	6-29-77 9-21-77	34.0 22.2
Cady Creek	Little Wenatchee River	Lat 47°54'50", long 121°05'33", in SE¼ sec.14, T.28 N., R.13 E., Chelan County, Wenatchee National Forest, 15.0 mi (22.5 km) northwest of Telma, and 20 ft (6.1 m) upstream from mouth.	7.65	1975-76	6-29-77 9-21-77	18.8 20.2
Fish Creek	Do......	Lat 47°54'20", long 121°05'04", in NW¼ sec.24, T.28 N., R.13 E., Chelan County, Wenatchee National Forest, 13.9 mi (22.4 km) northwest of Telma, and 80 ft (24 m) upstream from mouth.	7.92	1975-76	6-29-77 9-21-77	28.4 19.6
Fourteenmile Creek	Do......	Lat 47°53'47", long 121°04'11", in SE¼ sec.24, T.28 N., R.13 E., Chelan County, Wenatchee National Forest, 13.0 mi (20.9 km) northwest of Telma, at road crossing 0.1 mi (0.2 km) upstream from mouth.	.09	1975-76	6-29-77 9-21-77	.18 e.25
Lake Creek	Do......	Lat 47°52'35", long 121°02'04", in SW¼SW¼ sec.31, T.28 N., R.15 E., Chelan County, Wenatchee National Forest, at road crossing 0.2 mi (0.3 km) upstream from mouth, and 10.9 mi (17.5 km) northwest of Telma.	16.5	1911, 1975-76	6-28-77 9-21-77	47.5 26.8
Theseus Creek	Do......	Lat 47°52'24", long 121°00'58", in NE¼ sec.6, T.27 N., R.15 E., Chelan County, Wenatchee National forest, 11.0 mi (17.7 km) northwest of Telma, and at road crossing 150 ft (46 m) upstream from mouth.	1.05	1975-76	6-28-77 9-21-77	1.45 .85
Rainy Creek	Do......	Lat 47°51'02", long 120°57'3[illegible]", in S½ sec.10, T.27 N., R.15 E., Chelan County, Wenatchee National Forest, at road crossing, 0.3 mi (0.5 km) upstream from mouth, 7.2 mi (11.6 km) west of Telma.	17.2	1911, 1973, 1975-76	6-28-77 9-22-77	49.4 72.8
Little Wenatchee River	Wenatchee Lake	Lat 47°50'58", long 120°56'38", in center of SW¼ sec.11, T.27 N., R.15 E., Chelan County, Wenatchee National Forest, at Riverside Campground, 5.5 mi (8.8 km) west of Telma.	84.0	1975-76	6-29-77 9-22-77	196 118
12454290 Little Wenatchee River tributary	Little Wenatchee River	Lat 47°50'25", long 120°55'58", in SE¼NE¼ sec.14, T.27 N., R.15 E., Chelan County, at logging road 0.2 mi (0.3 km) above mouth and 6 mi (9.7 km) west of Telma.	1.02	1965-75a, 1965-67, 1969-70, 1972, 1975-76	6-28-77 9-21-77	2.83 .66
Little Wenatchee River	Wenatchee Lake	Lat 47°50'02", long 120°50'1[illegible]", in SE¼SW¼ sec.15, T.27 N., R.16 E., Chelan County, Wenatchee National Forest, 0.8 mi (1.3 km) upstream from Wenatchee Lake, 1.5 mi (2.4 km) southwest of Telma.	100	1911-13, 1967, 1970, 1973, 1975-76	6-29-77 9-20-77	221 119
Whitepine Creek (formerly Wild Horse Creek)	Nason Creek	Lat 47°46'29", long 120°54'5[illegible]", in SW¼SE¼ sec.1, T.26 N., R.15 E., Chelan County, at road crossing near mouth, and 3.7 mi (6.0 km) west of Merritt.	24.5	1911, 1975-76	6-29-77 9-21-77	2.60 .59

a Operated as a crest stage gage.
e Estimated.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wenatchee River basin--Continued				
Nason Creek	Wenatchee River	Lat 47°46'37", long 120°54'22", in SW¼SW¼ sec.6, T.26 N., R.16 E., Chelan County, Wenatchee National Forest, 0.4 mi (0.6 km) downstream from Whitepine Creek, and 8.0 mi (12.9 km) west of Coles Corner at mile 14.8 (23.8 km).	61.6	1973, 1975-76	6-29-77 9-21-77	137 92.9
Marhar Creek	Nason Creek	Lat 47°47'09", long 120°52'33", in NE¼SW¼ sec.5, T.26 N., R.16 E., Chelan County, at road crossing 1.9 mi (3.1 km) west of Merritt, and 0.1 mi (0.2 km) upstream from mouth.	1.83	1975-76	6-29-77 9-21-77	.63 .30
Kahler Creek	Do......	Lat 47°46'02", long 120°45'14", in SW¼NW¼ sec.8, T.26 N., R.17 E., Chelan County, at power line service road crossing 3.9 mi (6.3 km) east of Merritt, and 500 ft (152 m) upstream from mouth.	3.26	1975-76	6-29-77 9-21-77	1.02 .10
Nason Creek	Wenatchee River	Lat 47°47'26", long 120°42'55", in SE¼SE¼ sec.33, T.27 N., R.17 E., Chelan County, Lake Wenatchee State Park, 2.8 mi (4.5 km) northeast of Coles Corner at mile 1.6 (2.6 km).	107	1973, 1975-76	6-28-77 9-21-77	196 131
Fish Lake Run (formerly Fish Lake Outlet)	Wenatchee River	Lat 47°49'08", long 120°41'43", in SE¼SE¼ sec.22, T.27 N., R.17 E., Chelan County, Wenatchee National Forest, at culvert on Fish Lake road, 4.3 mi (6.9 km) northwest of Plain.	5.51	1974-76	6-28-77 9-21-77	1.39 .11
Chiwawa River	Do......	Lat 48°04'12", long 120°51'04", in NE¼ sec.28, T.30 N., R.16 E., Chelan County, 500 ft (152 m) upstream from Phelps Creek, and 15.9 mi (25.6 km) north of Telma.	26.0	1975-76	9-20-77	55.6
12456000 Phelps Creek	Chiwawa River	Lat 48°04'24", long 120°50'58", in NW¼ sec.27, T.30 N., R.16 E., Chelan County, at road crossing, 0.3 mi (0.5 km) upstream from mouth, and 16.0 mi (25.7 km) north of Telma.	16.4	1927, 1927-31‡, 1948, 1975-76	6-28-77 9-20-77	57.8 14.5
Maple Creek	Do......	Lat 48°01'30", long 120°49'42", in NE¼ sec.11, T.29 N., R.16 E., Chelan County, Wenatchee National Forest, 500 ft (152 m) upstream from mouth, and 12.7 mi (20.4 km) north of Telma.	5.31	1975-76	6-28-77 9-20-77	2.90 .86
Rock Creek	Do......	Lat 47°58'13", long 120°47'18", in SW¼NE¼ sec.36, T.29 N., R.16 E., Chelan County, Wenatchee National Forest, at road crossing 0.6 mi (1.0 km) upstream from mouth, and 8.9 mi (14.3 km) north of Telma.	21.3	1975-76	6-28-77 9-20-77	62.0 11.0
Chewawa River tributary	Do......	Lat 47°57'07", long 120°46'10", in NE¼SW¼ sec.6, T.28 N., R.17 E., Chelan County, Wenatchee National Forest, 0.3 mi (0.5 km) northwest of Rock Creek Guard Station, and 7.8 mi (12.6 km) north of Telma.	.41	1975-76	6-28-77 9-20-77	0 0
Do......	Do......	Lat 47°57'01", long 120°46'01", in NE¼SW¼ sec.6, T.28 N., R.17 E., Chelan County, Wenatchee National Forest, at Rock Creek Guard Station, 7.7 mi (12.4 km) north of Telma.	.41	1975-76	6-28-77 9-20-77	.29 .18
Minnow Creek	Chikamin Creek	Lat 47°54'36", long 120°43'11", in NW¼SE¼ sec.21, T.28 N., R.17 E., Chelan County, Wenatchee National Forest, 100 ft (30 m) upstream from mouth, and 10.9 mi (17.5 km) northwest of Plain.	3.10	1975-76	6-28-77 9-20-77	.74 .32
Chikamin Creek	Chiwawa River	Lat 47°54'31", long 120°43'16", in NW¼SE¼ sec.21, T.28 N., R.17 E., Chelan County, Wenatchee National Forest, at road crossing 0.5 mi (0.8 km) upstream from mouth, and 4.2 mi (6.8 km) northeast of Telma.	20.5	1975-76	6-28-77 9-20-77	17.5 6.47
12456300 Brush Creek	Do......	Lat 47°53'20", long 120°43'15", in NW¼SE¼ sec.33, T.28 N., R.17 E., Chelan County, Wenatchee National Forest, at logging road crossing 1.0 mi (1.6 km) upstream from mouth, and 6.2 mi (10.0 km) northeast of Telma.	3.34	1965-69, 1965-75a, 1971-72, 1976	6-28-77 9-20-77	.82 .37
Gate Creek	Do......	Lat 47°53'55", long 120°42'12", in SE¼NW¼ sec.27, T.28 N., R.17 E., Chelan County, Wenatchee National Forest, 0.1 mi (0.2 km) upstream from mouth, and 6.3 mi (10.1 km) northeast of Telma.	3.01	1975-76	6-28-77 9-20-77	0 .06
Big Meadow Creek	Do......	Lat 47°52'04", long 120°41'44", in NE¼SE¼ sec.3, T.27 N., R.17 E., Chelan County, Wenatchee National Forest at road crossing 0.2 mi (0.3 km) upstream from mouth, 7.5 mi (12.1 km) northwest of Plain.	16.5	1954, 1973, 1975-76	6-28-77 9-20-77	8.73 5.03
Alder Creek	Do......	Lat 47°50'55", long 120°39'31", in SW¼SE¼ sec.12, T.27 N., R.17 E., Chelan County, Wenatchee National Forest at road crossing 0.4 mi (0.6 km) upstream from mouth, and 6.0 mi (9.7 km) north of Plain.	16.5	1954, 1975-76	6-28-77 9-20-77	2.48 1.20

‡ Operated as a continuous-record gaging station.

a Operated as a crest-stage gage.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wenatchee River basin--Continued				
12456500 Chiwawa River	Wenatchee River	Lat 47°50'21", long 120°39'27", in NW¼SE¼ sec.13, T.27 N., R.17 E., Chelan County, Wenatchee National Forest, at county road crossing, 0.5 mi (0.8 km) upstream from Goose Creek, and 5.2 mi (8.4 km) north of Plain.	172	1911-14‡, 1936-49‡, 1954-57‡, 1958, 1967, 1970, 1975-76	9-21-77	194
Goose Creek	Chiwawa River	Lat 47°50'21", long 120°38'46", in NW¼SW¼ sec.18, T.27 N., R.17 E., Chelan County, Wenatchee National Forest, 0.4 mi (0.6 km) upstream from mouth, and 5.3 mi (8.5 km) north of Plain.	2.43	1975-76	6-28-77 9-21-77	.47 .33
Deep Creek	Do......	Lat 47°49'12", long 120°38'00", in SW¼SE¼ sec.19, T.27 N., R.18 E., Chelan County, Wenatchee National Forest, at road crossing 0.3 mi (0.5 km) upstream from mouth, and 4.0 mi (6.4 km) northeast of Plain.	2.82	1975-76	6-28-77 9-21-77	.30 .33
Beaver Creek	Wenatchee River	Lat 47°45'53", long 120°39'18", in NW¼SE¼ sec.12, T.26 N., R.17 E., Chelan County, Wenatchee National Forest, at road crossing 0.3 mi (0.5 km) upstream from mouth, at Plain.	10.0	1910-11, 1975-76	6-28-77 9-21-77	1.69 1.44
12457500 Chiwaukum Creek	Do......	Lat 47°50'44", long 120°43'39", in SE¼NW¼ sec.9, T.25 N., R.17 E., Chelan County, Wenatchee National Forest, 1.0 mi (1.6 km) southeast of Chiwaukum, and 0.1 mi (C.2 km) upstream from mouth.	49.6	1911‡, 1912-13, 1926 1958, 1967, 1975-76	9-21-77	32.3
Icicle Creek	Do......	Lat 47°36'46", long 120°56'40", in NW¼NW¼ sec.2, T.24 N., R.15 E., Chelan County, Wenatchee National Forest, 100 ft (30 m) upstream from Black Pine Creek, and 13.3 mi (21.4 km) west of Leavenworth.	74.3	1975-76	9-20-77	72.6
Black Pine Creek	Icicle Creek	Lat 47°36'42", long 120°56'39", in NW¼NW¼ sec.2, T.24 N., R.15 E., Chelan County, Wenatchee National Forest, 13.3 mi (21.4 km) west of Leavenworth, and 0.1 mi (0.2 km) upstream from mouth.	3.33	1975-76	6-29-77 9-20-77	4.05 .07
Jack Creek	Do......	Lat 47°36'30", long 120°54'02", in NW¼ sec.6, T.24 N., R.16 E., Chelan County, Wenatchee National Forest, at end of road near mouth, and 11.3 mi (18.2 km) west of Leavenworth.	29.1	1911, 1975-76	6-29-77 9-20-77	21.8 20.2
Trout Creek	Do......	Lat 47°36'23", long 120°53'33", in NW¼ sec.6, T.24 N., R.16 E., Chelan County, Wenatchee National Forest, at foot trail crossing near mouth and 10.7 mi (17.2 km) west of Leavenworth.	8.43	1911, 1975-76	9-20-77	.70
12457900 Chatter Creek	Do......	Lat 47°36'27", long 120°53'16", in N½ sec.6, T.24 N., R.16 E., Chelan County, Wenatchee National Forest, at Icicle Creek road 11 mi (17.7 km) west of Leavenworth.	2.25	1966-75a, 1965-69, 1971-72, 1975-76	6-29-77 9-20-77	.96 e.10
Doctor Creek	Do......	Lat 47°36'26", long 120°51'54", in SE¼NE¼ sec.5, T.24 N., R.16 E., Chelan County, Wenatchee National Forest, 200 ft (61 m) upstream from mouth, and 9.6 mi (15.4 km) west of Leavenworth.	1.97	1975-76	6-29-77 9-20-77	0 0
Ida Creek	Do......	Lat 47°36'26", long 120°50'53", in SW¼NE¼ sec.4, T.24 N., R.16 E., Chelan County, Wenatchee National Forest, 8.8 mi (14.2 km) west of Leavenworth, and 10 ft (3.0 m) upstream from mouth.	1.42	1975-76	6-29-77 9-20-77	1.39 .06
Johnny Creek	Do......	Lat 47°35'54", long 120°49'01", in NW¼SW¼ sec.2, T.24 N., R.16 E., Chelan County, Wenatchee National Forest, 25 ft (7.6 m) upstream from mouth, and 7.4 mi (11.9 km) west of Leavenworth.	1.24	1975-76	6-29-77 9-20-77	.36 .39
Bridge Creek	Do......	Lat 47°33'41", long 120°46'44", in NE¼NE¼ sec.24, T.24 N., R.16 E., Chelan County, Wenatchee National Forest, 50 ft (15 m) upstream from mouth, and 6.1 mi (9.8 km) west of Leavenworth.	1.16	1975-76	6-29-77	.43 .13
12458000 Icicle Creek	Wenatchee River	Lat 47°32'28", long 120°43'08", in SE¼SE¼ sec.28, T.24 N., R.17 E., Chelan County, Wenatchee National Forest, 1,000 ft (305 m) upstream from Icicle Canal diversion dam, 4.8 mi (7.7 km) southwest of Leavenworth, and at mile 5.8 (9.3 km).	193	1936-71‡, 1973-74a, 1976	6-30-77 9-21-77	492 296
Chumstick Creek	Do......	Lat 47°42'51", long 120°38'07", in NW¼NE¼ sec.31, T.26 N., R.18 E., Chelan County, Wenatchee National Forest, 8.2 mi (13.2 km) north of Leavenworth, and 0.2 mi (0.3 km) downstream from Little Chumstick Creek.	24.9	1975-76	6-29-77 9-20-77	.44 .39

‡ Operated as continuous-record station.
a Operated as a crest-stage gage.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wenatchee River basin--Continued				
Van Creek	Eagle Creek	Lat 47°39'24", long 120°32'29", in NW¼NW¼ sec.24, T.25 N., R.18 E., Chelan County, Wenatchee National Forest, at road crossing at mouth, 6.9 mi (11.1 km) northeast of Leavenworth.	8.09	1975-76	6-29-77 9-20-77	0.49 .36
Eagle Creek	Chumstick River	Lat 47°37'28", long 120°38'36", in NE¼NW¼ sec.31, T.25 N., R.18 E., Chelan County, 50 ft (15.2 m) upstream from mouth, and 2.1 mi (3.4 km) northeast of Leavenworth.	28.4	1975-76	6-29-77 9-20-77	0 0
Chumstick Creek	Wenatchee River	Lat 47°36'18", long 120°38'50", in SE¼NE¼ sec.1, T.24 N., R.17 E., Chelan County, 0.8 mi (1.3 km) northeast of Leavenworth, and 0.2 mi (0.3 km) upstream from mouth.	79.3	1975-76	6-29-77 9-20-77	2.54 3.85
12458900 Posey Canyon	Do......	Lat 47°36'01", long 120°37'22", in SW¼SW¼ sec.5, T.24 N., R.18 E., Chelan County, at road crossing, 1.8 mi (2.9 km) east of Leavenworth, and 0.6 mi (1.0 km) upstream from mouth.	1.36	1954-73[a], 1954-55, 1957-59, 1965, 1967, 1975-76	6-29-77 9-20-77	e.01 e.05
Derby Canyon	Do.....	Lat 47°34'11", long 120°35'10", in SE¼SE¼ sec.16, T.24 N., R.18 E., Chelan County, 0.8 mi (1.3 km) east of Peshastin, and 0.1 mi (0.2 km) upstream from mouth.	12.6	1975-76	6-29-77 9-19-77	.18 4.13
Scotty Creek	Peshastin Creek	Lat 47°22'40", long 120°38'41", in SW¼SE¼ sec.24, T.22 N., R.17 E., Chelan County, Wenatchee National Forest, 3.2 mi (5.1 km) south of Blewett and 100 ft (30 m) upstream from mouth.	7.15	1975-76	6-29-77 9-19-77	.38 .24
Shaser Creek	Do......	Lat 47°23'28", long 120°39'28", in SW¼SW¼ sec.13, T.22 N., R.17 E., Chelan County, Wenatchee National Forest, 2.2 mi (3.5 km) south of Blewett, and 40 ft (12 m) upstream from mouth.	8.92	1975-76	6-29-77 9-19-77	1.34 .71
12459400 Tronsen Creek	Do......	Lat 47°20'18", long 120°33'58", in NE¼SW¼ sec.3, T.21 N., R.18 E., Chelan County, at forest campground, 0.6 mi (1.0 km) northeast of Swauk Pass and 17 mi (27.4 km) south of Peshastin.	3.96	1959, 1960[a], 1966-67, 1969, 1962-74[a], 1972, 1974-76	6-29-77 9-19-77	.46 .43
Tronsen Creek	Do......	Lat 47°23'52", long 120°39'03", in SE¼NW¼ sec.13, T.22 N., R.17 E., Chelan County, Wenatchee National Forest, 12.3 mi (19.8 km) south of Peshastin, and 100 ft (30 m) upstream from mouth.	16.2	1959, 1975-76	6-29-77 9-19-77	.45 .14
Culver Springs	Do.......	Lat 47°25'15", long 120°39'28", in SW¼SW¼ sec.1, T.22 N., R.17 E., Chelan County, Wenatchee National Forest, 0.2 mi (0.3 km) south of Blewett, and 75 ft (23 m) upstream from mouth.	.66	1975-76	6-27-77 9-19-77	.04 .03
Nigger Creek	Do......	Lat 47°26'37", long 120°39'38", in NE¼SW¼ sec.36, T.23 N., R.17 E., Chelan County, Wenatchee National Forest, 9.2 mi (14.8 km) southwest of Peshastin, and 30 ft (9 m) upstream from mouth.	12.2	1911, 1975-76	6-27-77 9-19-77	6.31 2.90
Ruby Creek	Do......	Lat 47°26'59", long 120°39'10", in NE¼NE¼ sec.36, T.23 N., R.17 E., Chelan County, Wenatchee National Forest, at State Highway 97 crossing, 1.8 mi (2.9 km) north of Blewett, and 300 ft (91 m) upstream from mouth.	4.59	1975-76	6-27-77 9-19-77	.11 .06
Ingalls Creek	Do......	Lat 47°27'48", long 120°39'38", in SE¼NW¼ sec.25, T.23 N., R.17 E., Chelan County, 9.4 mi (14.1 km) south of Leavenworth, and 300 ft (91 m) upstream from mouth.	36.8	1911, 1973, 1975-76	6-27-77 9-19-77	47.5 23.8
Hansel Creek	Do......	Lat 47°28'17", long 120°39'21", in NW¼SE¼ sec.24, T.23 N., R.17 E., Chelan County, Wenatchee National Forest, 7.3 mi (11.7 km) south of Peshastin, and 50 ft (15 m) upstream from mouth.	3.76	1927, 1975-76	6-27-77 9-19-77	.63 .56
Camas Creek	Do......	Lat 47°30'39", long 120°37'59", in NW¼NE¼ sec.18, T.23 N., R.18 E., Chelan County, at State Highway 97 crossing 5.0 mi (8.0 km) north of Blewett, and 0.3 mi (0.5 km) upstream from mouth.	9.12	1975-76	6-27-77 9-19-77	0 0
Mill Creek	Do......	Lat 47°20'39", long 120°37'49", in SW¼SE¼ sec.6, T.23 N., R.18 E., Chelan County, 4.3 mi (6.9 km) southwest of Peshastin, and 20 ft (6.1 m) upstream from mouth.	5.36	1975-76	6-29-77 9-19-77	0 0
Peshastin Creek	Wenatchee River	Lat 47°33'09", long 120°36'07", in NW¼NW¼ sec.28, T.24 N., R.18 E., Chelan County, at road crossing 1.3 mi (2.1 km) south of Peshastin, and 1.4 mi (2.3 km) upstream from mouth.	133	1904, 1914, 1948, 1975-76	6-29-77 9-19-77	[j]50.0 [k]18.7

[a] Operated as a crest-stage gage.
[j] Included 32.3 ft^3/s in irrigation canal.
[k] Included 5.63 ft^3/s in irrigation canal.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Wenatchee River basin--Continued				
12461100 East Fork Mission Creek	Mission Creek	Lat 47°22'51", long 120°29'16", in NE¼SW¼ sec.20, T.22 N., R.19 E., Chelan County, Wenatchee National Forest, at U.S. Forest Service road crossing 9.7 mi (15.6 km) south of Cashmere.	15.4	1955-74a, 1955-61, 1963, 1965-67, 1975-76	6-27-77 9-19-77	.19 .45
12461200 East Branch Mission Creek tributary	East Branch Mission Creek	Lat 47°22'54", long 120°29'20", in NE¼SW¼ sec.20, T.22 N., R.19 E., Chelan County, Wenatchee National Forest, at U.S. Forest Service road crossing 9.7 mi (15.6 km) south of Cashmere.	2.49	1955-74a, 1955-60, 1966-67, 1975-76	6-27-77 9-19-77	0 0
12461400 Mission Creek	Wenatchee River	Lat 47°25'48", long 120°30'28", in SE¼NW¼ sec.6, T.22 N., R.19 E., Chelan County, Wenatchee National Forest, 6.5 mi (10.5 km) south of Cashmere, and 400 ft (120 m) upstream from Sand Creek.	39.8	1959-71‡, 1973-74a, 1971, 1975-76	6-27-77 9-19-77	.81 1.62
Little Camas Creek	Sand Creek	Lat 47°26'02", long 120°32'19", in NE¼ sec.2, T.22 N., R.18 E., Chelan County, Wenatchee National Forest, at mouth, 7.0 mi (11.3 km) southwest of Cashmere.	5.39	1975-76	6-27-77 9-19-77	.04 .11
Poison Creek	Do......	Lat 47°26'00", long 120°31'04", in NW¼ sec.6, T.22 N., R.19 E., Chelan County, Wenatchee National Forest, at road crossing at mouth, 6.5 mi (10.5 km) south of Cashmere.	3.44	1975-76	6-27-77 9-19-77	e.03 0
12461500 Sand Creek	Mission Creek	Lat 47°25'48", long 120°30'25", in SW¼NE¼ sec.6, T.22 N., R.19 E., Chelan County, Wenatchee National Forest, 60 ft (18 m) upstream from mouth, 6.5 mi (10.5 km) south of Cashmere.	18.6	1954a, 1955-56‡, 1957-73a, 1957, 1959-60, 1963, 1965, 1967, 1970, 1973, 1975-76	6-27-77 9-19-77	.17 .38
12462000 Mission Creek	Wenatchee River	Lat 47°31'00", long 120°28'30", in NW¼SW¼ sec.9, T.23 N., R.19 E., Chelan County, 0.4 mi (0.6 km) below former gage, and 1.0 mi (1.6 km) south of Cashmere.	81.2	1954a, 1954-58‡, 1959-73a, 1959, 1965, 1967, 1975-76	6-27-77 9-19-77	.86 5.43
		Squilchuck Creek basin				
Squilchuck Creek	Columbia River	Lat 47°23'42", long 120°17'38", in SE¼SW¼ sec.14, T.22 N., R.20 E., Chelan County, 0.3 mi (0.5 km) above mouth in south Wenatchee.	27.8	1926	2-28-77 8-25-77	2.23 .01
		Douglas Creek basin				
12462800 Moses Creek	Douglas Creek	Lat 47°37'03", long 120°00'27", in NE¼SE¼ sec.36, T.25 N., R.22 E., Douglas County, at county road, 0.3 mi (0.5 km) southeast of Douglas.	15.4	1955a, 1957-75a, 1965, 1976	2-28-77 4-28-77 8-25-77	0.68 .58 .01
12463000 Douglas Creek	Columbia River	Lat 47°35'03", long 120°01'19", in SW¼SW¼ sec.12, T.24 N., R.22 E., Douglas County, 1.3 mi (2.4 km) northwest of Alstown, 2.9 mi (4.7 km) south of Douglas.	99.9	1949-55‡, 1956-60a, 1963-68‡	2-28-77 4-28-77 8-25-77	2.33 1.02 0
Douglas Creek	Do......	Lat 47°25'12", long 119°54'56", in NW¼NW¼ sec.11, T.22 N., R.23 E., Douglas County, at road bridge 350 ft (107 m) west of post office at Palisades.	197	1948	2-25-77 4-21-77 8-24-77	5.65 1.48 1.43
		Willow Springs Draw basin				
Willow Springs Creek	Columbia River	Lat 47°14'13", long 119°59'32", in NW¼SE¼ sec.7, T.20 N., R.23 E., Grant County, 0.6 mi (1.0 km) northeast of Trinidad, 1.0 mi (1.6 km) above mouth.	65.7	---	2-25-77 4-21-77 8-24-77	0 0 0
		Crab Creek basin				
12464800 Coal Creek	Crab Creek	Lat 47°24'25", long 118°19'04", in SE¼SE¼ sec.7, T.22 N., R.36 E., Lincoln County at former gaging station 0.7 mi (1.1 km) east of Mohler.	64.7	1963-74‡, 1975-a	2-23-77 4-19-77 8-22-77	1.83 1.00 e.01
Crab Creek	Columbia River	Lat 47°19'53", long 118°41'29", in SE¼NW¼ sec.8, T.21 N., R.33 E., Adams County, at State Highway 21 in Odessa.	---	---	2-24-77 4-21-77 8-25-77	0 e.5 0
Lake Creek	Crab Creek	Lat 47°25'05", long 118°41'10", in NW¼SE¼ sec.8, T.22 N., R.33 E., Lincoln County, at State Highway 21, 1.6 mi (2.6 km) upstream from Wederspan Lake and 6.0 (9.7 km) north of Odessa.	---	---	2-24-77 4-21-77 8-23-77	.02 0 0

‡ Operated as a continuous-record gaging station.
a Operated as a crest-stage gage.
e Estimated.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Crab Creek basin--Continued				
Marlin Hallow	Crab Creek	Lat 47°27'50", long 118°45'52", in NE¼NE¼ sec.27, T.23 N., R.32 E., Lincoln County, at State Highway 21, 8.0 mi (12.9 km) northeast of Irby, and 9.5 mi (15.3 km) northwest of Odessa.	---	---	2-24-77 4-21-77 8-23-77	0 0 0
Goose Creek	Wilson Creek	Lat 47°45'23", long 118°42'08", in NE¼NE¼ sec.18, T.26 N., R.33 E., Lincoln County, in city park at Wilbur, 4.5 mi (7.2 km) from mouth.	52.0	---	2-24-77 4-20-77 8-23-77	3.30 2.34 .53
Goose Creek tributary	Goose Creek	Lat 47°42'57", long 118°43'14", in SW¼SW¼ sec.30, T.26 N., R.33 E., Lincoln County, at State Highway 21, 3.0 mi (4.8 km) south of Wilbur.	---	---	2-24-77 4-20-77 8-23-77	e.2 e.03 e<.01
12465150 Sinking Creek	Wilson Creek	Lat 47°40'18", long 118°43'13", in SE¼SE¼ sec.12, T.25 N., R.32 E., Lincoln County, at State Highway 21, 6.0 mi (9.7 km) south of Wilbur.	55.8	1961-62	2-24-77 4-20-77 8-23-77	1.21 .60 0
Corbett Draw	Do......	Lat 47°39'52", long 118°55'35", in SE¼SW¼ sec.16, T.25 N., R.31 E., Lincoln County, 1,000 ft (305 m) upstream from the mouth, and 3 mi (5 km) south of Almira.	119	1976	2-24-77 4-20-77 8-23-77	3.16 3.00 1.09
12465400 Wilson Creek	Crab Creek	Lat 47°39'47", long 118°55'46", in SW¼SW¼ sec.16, T.25 N., R.31 E., Lincoln County, on left bank 65 ft (20 m) downstream from Corbett Draw and 3.5 mi (5.6 km) south of Almira.	327	1969-71‡, 1972-a	2-24-77 4-20-77 8-23-77	8.41 6.05 0
12465500 Wilson Creek	Do......	Lat 47°25'50", long 119°06'10", in SW¼SW¼ sec.6, T.22 N., R.30 E., Grant County, 1.0 mi (1.6 km) northeast of town of Wilson Creek and at mile 1.6 (2.6 km).	427	1951-73‡, 1974-a	2-25-77 4-21-77 8-24-77	0 0 0
Crab Creek	Columbia River	Lat 47°25'40", long 119°16'19", in SW¼SW¼ sec.2, T.22 N., R.28 E., Grant County, at State Highway 28, 0.9 mi (1.4 km) east of Stratford.	---	1963	2-25-77 4-21-77 8-24-77	0 0 0
Rocky Coulee Wasteway	Crab Creek	Lat 47°09'45", long 119°15'20", on east line of SE¼SE¼ sec.2, T.19 N., R.28 E., Grant County, at county road bridge, 2.8 mi (4.5 km) northeast of Moses Lake, and 0.3 mi (0.5 km) upstream from mouth.	---	1974-75	2-25-77 4-21-77 8-24-77	19.6 1,250 780
Weber Coulee	Lind Coulee	Lat 47°05'04", long 119°00'58", in NE¼NW¼ sec.2, T.18 N., R.30 E., Grant County, on Interstate Highway 90, 4.5 mi (7.2 km) northwest of Bassett Junction, 8.0 mi (12.9 km) north of Warden.	---	---	2-25-77 4-21-77 8-25-77	0 0 0
12472500 Crab Creek	Columbia River	Lat 46°50'35", long 119°36'25", in NW¼SE¼ sec.30, T.16 N., R.26 E., on left bank 0.3 mi (0.5 km) downstream from county road bridge, 2.5 mi (4.0 km) east of Smyrna and 17.0 mi (27.4 km) upstream from mouth.	4,781[m]	1942-60‡	4-21-77 8-24-77	211 257
		Yakima River basin				
Coal Creek	Keechelus Lake	Lat 47°23'37", long 121°23'20", in NW¼SE¼ sec.15, T.22 N., R.11 E., Kittitas County, Wenatchee National Forest, at Interstate 90 crossing at mouth, at Hyak.	---	1970, 1973	2-14-77 5-10-77 5-24-77 8- 9-77	35.2 35.4 31.9 .62
Gold Creek	Do......	Lat 47°23'28", long 121°22'52", in NE¼SE¼ sec.15, T.22 N., R.11 E., Kittitas County, Wenatchee National Forest, between Interstate 90 bridges, 0.5 mi (0.8 km) east of Hyak.	14.0	1906, 1910, 1960, 1968, 1970, 1973	2-14-77 5-24-77 8- 9-77	117 104 17.1
Meadow Creek	Do......	Lat 47°18'45", long 121°21'07", in NE¼NW¼ sec.13, T.21 N., R.11 E., Kittitas County, Wenatchee National Forest, at road crossing, 2.7 mi (4.3 km) northwest of Martin.	7.88	1906, 1910, 1970, 1973-75	2-14-77 5-10-77 5-24-77 8- 9-77	62.2 60.2 47.8 4.52
12474700 Mosquito Creek	Yakima River	Lat 47°17'32", long 121°19'23", in SE¼ sec.22, T.21 N., R.12 E., Kittitas County, at Forest Service road, 2.0 mi (3.2 km) southeast of Keechelus Dam and 8 mi (12.9 km) northwest of Easton.	1.07	1968-76a, 1969-75	6- 5-69 11- 4-69 5-27-70 6-22-71 5-31-72 5-17-73 5- 8-74 7-29-75 2-14-77 5-24-77 8- 9-77	c25.4 c4.35 c19.6 c33.9 c49.3 c18.2 c29.3 c.72 7.9 4.6 .16
12475000 Cabin Creek	Do......	Lat 47°14'36", long 121°13'39", in NW¼SE¼ sec.9, T.20 N., R.13 E., Kittitas County, at county road and railroad crossing, 2.2 mi (3.5 km) west of Easton.	29.3	1904, 1907-09, 1909-11‡, 1912-15, 1958, 1967, 1970	2-15-77 5-24-77 8- 9-77	78.3 88.7 8.18

‡ Operated as a continuous-record gaging station.
a Operated as a crest-stage gage.
c Not previously published.
e Estimated.
m Includes 665 mi^2 which is noncontributing.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Yakima River basin--Continued				
12475300 Box Canyon tributary	Box Canyon	Lat 47°22'57", long 121°15'42", near center of sec.19, T.22 N., R.13 E., Kittitas County, at Forest Service road 2.5 mi (4.0 km) north of Kachess Guard Station, and 11 mi (17.7 km) northwest of Easton.	0.36	1969-76a, 1969-71	2-14-77 5-24-77 7-12-77 8- 9-77	2.92 1.0 .10 .01
Big Creek	Yakima River	Lat 47°12'44", long 121°06'09", in SE¼NW¼ sec.21, T.20 N., R.14 E., Kittitas County, at Interstate 90, 3.5 mi (5.6 km) southeast of Easton.	27.4	1909-10, 1912, 1967, 1970, 1973, 1976	2-15-77 5-25-77 8-10-77	23.1 37.6 .46
Paris Creek	Cle Elum River	Lat 47°24'55", long 121°04'49", in NW¼SW¼ sec.10, T.22 N., R.14 E., Kittitas County, Wenatchee National Forest, 0.4 mi (0.6 km) upstream from mouth, 1.2 mi (1.9 km) northeast of Salmon La Sac Guard Station.	3.90	1970, 1973	5-25-77 8-10-77	15.6 2.58
Cle Elum River	Yakima River	Lat 47°24'10", long 120°05'46", in NE¼NW¼ sec.16, T.22 N., R.14 E., Kittitas County, at Salmon La Sac 1.5 mi (2.4 km) below Waptus River, 4.0 mi (6.4 km) above Cle Elum Lake.	---	---	5-25-77 8-10-77	551 191
West Fork Teanaway River	Teanaway River	Lat 47°15'28", long 120°53'52", in NW¼NW¼ sec.6, T.20 N., R.16 E., Kittitas County, at Illahee Camp, 4.5 mi (7.2 km) northeast of Cle Elum.	39.3	1970, 1973	2-17-77 5-25-77 8-10-77	37.7 26.9 1.42
Middle Fork Teanaway River	Do......	Lat 47°15'32", long 120°53'48", in NW¼NW¼ sec.6, T.20 N., R.16 E., Kittitas County, at county road crossing, 4.6 mi (7.4 km) northeast of Cle Elum.	30.0	1970, 1973	2-17-77 5-25-77 8-10-77	42.1 51.1 2.38
Stafford Creek	North Fork Teanaway River	Lat 47°20'52", long 120°50'49", in SW¼SW¼ sec.33, T.22 N., R.16 E., Kittitas County, Wenatchee National Forest, at county road crossing, at mouth, 11.3 mi (18.2 km) northeast of Cle Elum.	22.2	1970, 1973	5-24-77 8-10-77	27.5 4.19
Jungle Creek	Do......	Lat 47°20'02", long 120°51'24", in SW¼SE¼ sec.5, T.21 N., R.16 E., Kittitas County, Wenatchee National Forest, at road crossing, 10.2 mi (16.4 km) northeast of Cle Elum.	6.17	1970, 1973	2-16-77 5-24-77 8-10-77	4.60 1.57 .02
Jack Creek	Do......	Lat 47°19'27", long 120°51'04", in NE¼SE¼ sec.8, T.21 N., R.16 E., Kittitas County, at road crossing, 0.4 mi (0.6 km) upstream from mouth, 9.6 mi (15.4 km) northeast of Cle Elum.	8.16	1973	5-24-77 8-10-77	1.63 0
Indian Creek	Do......	Lat 47°18'04", long 120°51'10", in NE¼SE¼ sec.20, T.21 N., R.16 E., Kittitas County, at road crossing, 0.3 mi (0.5 km) upstream from mouth, 8.3 mi (13.4 km) northeast of Cle Elum.	6.18	1973	2-16-77 5-24-77 8-10-77	1.23 .79 0
Middle Creek	Do......	Lat 47°17'42", long 120°51'19", in NE¼SE¼ sec.20, T.21 N., R.16 E., Kittitas County, at mouth, 7.9 mi (12.7 km) northeast of Cle Elum.	5.03	1973	2-16-77 5-24-77 8-10-77	1.22 1.34 0
Dickey Creek	Do......	Lat 47°17'17", long 120°51'20", in NW¼SE¼ sec.29, T.21 N., R.16 E., Kittitas County, at mouth, 7.4 mi (11.9 km) northeast of Cle Elum.	3.56	1973	2-16-77 5-25-77 8-10-77	0 .70 0
North Fork Teanaway River	Teanaway River	Lat 47°15'17", long 120°52'38", in SE¼NE¼ sec.6, T.20 N., R.16 E., Kittitas County, at county road crossing, 0.3 mi (0.5 km) upstream from mouth, 5.0 mi (8.0 km) northeast of Cle Elum.	94.8	1970, 1973	2-17-77 5-25-77 8-10-77	69.3 96.7 12.6
12480000 Teanaway River	Yakima River	Lat 47°14'48", long 120°51'36", in NE¼NE¼ sec.8, T.20 N., R.16 E., Kittitas County, 9.6 mi (15.4 km) upstream from mouth, 0.4 mi (0.6 km) downstream from Story Creek, 1.0 mi (1.6 km) downstream from North Fork, and 5.0 mi (8.0 km) northeast of Cle Elum.	172	1911-12‡, 1968-73‡, 1974-75a	2-17-77	145
12480500 Teanaway River	Do......	Lat 47°11'44", long 120°47'04", in NE¼SW¼ sec.25, T.20 N., R.16 E., Kittitas County, at State Highway 970 crossing, 6.5 mi (10.5 km) east of Cle Elum	200	1946-52‡, 1958, 1970, 1973	5-25-77 8-11-77	165 3.68
12480700 Hovey Creek	Swauk Creek	Lat 47°19'05", long 120°41'32", on line between secs.10 and 15, T.21 N., R.17 E., Kittitas County, at U.S. Highway 97, 2.5 mi (4.0 km) south of Blewett Pass and 14.5 mi (23.3 km) northeast of Cle Elum.	2.65	1955-74a, 1961, 1967, 1969-71, 1974	2-17-77 5- 9-77 5-24-77 8-11-77	.53 .79 .79 0
Swauk Creek	Yakima River	Lat 47°18'59", long 120°41'26", in NW¼SE¼ sec.15, T.21 N., R.17 E., Kittitas County, Wenatchee National Forest, 0.1 mi (0.2 km) downstream from Hovey Creek, 4.5 mi (7.2 km) northwest of Liberty.	---	1973	2-17-77 5- 9-77 5-24-77 8-11-77	3.88 6.11 5.26 1.0
South Fork Manastash Creek	Manastash Creek	Lat 46°58'06", long 120°48'19", in NE¼NW¼ sec.14, T.17 N., R.16 E., Kittitas County, 3.8 mi (6.1 km) above North Fork, and 13 mi (21 km) west of Ellensburg.	---	---	5-25-77	23.8
Do......	Do......	Lat 46°57'35", long 120°47'03", in NE¼SW¼ sec.13 T.17 N., R.16 E., Kittitas County, 2.5 mi (4.0 km) above North Fork Manastash Creek and 12 mi (19 km) southwest of Ellensburg.	---	1967	2-17-77 8-11-77	11.1 5.79

‡ Operated as a continuous-record gaging station.
a Operated as a crest-stage gage.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Yakima River basin--Continued				
Manastash Creek	Yakima River	Lat 46°58'02", long 120°41'02", in NW¼NW¼ sec.14, T.17 N., R.17 E., Kittitas County, about 500 ft (804 m) above road crossing 0.2 mi (0.3 km) above Reed Canyon, about 1 mi (1.6 km) above entrance to Manastash Canyon and 6.4 mi (10.3 km) southwest of Ellensburg.	---	1967	2-18-77 5-25-77 8-11-77	5.03 27.2 5.46
Wilson Creek	Do......	Lat 47°07'15", long 120°28'40", in SE¼SE¼ sec.20, T.19 N., R.19 E., Kittitas County, about 350 ft (110 km) upstream from Naneum Creek, 9.2 mi (14.8 km) northeast of Ellensburg.	---	1972, 1973	2-17-77 5-25-77 8-11-77	1.80 4.19 .43
Do......	Do......	Lat 46°55'01", long 120°30'25", in NE¼SW¼ sec.31, T.17 N., R.19 E., Kittitas County, 200 ft (61 m) above mouth, 0.7 mi (1.1 km) downstream from Cherry Creek, 0.8 mi (1.3 km) south of Thrall.	382	1914, 1915, 1971, 1973-75	2-18-77 5-26-77 8-11-77	76.3 328 253
Wenas Creek	Do......	Lat 46°49'59", long 120°42'40", in NE¼NW¼ sec.33, T.16 N., R.17 E., Yakima County, at road crossing, 1.8 mi (2.9 km) above Wenas Lake, 8 mi (12.9 km) north of Naches.	---	1967, 1973	2-18-77 5-25-77 8-12-77	5.28 5.41 .80
Crow Creek	Little Naches River	Lat 47°00'58", long 121°08'22", in NE¼SE¼ sec.30, T.18 N., R.14 E., Yakima County, Snoqualmie National Forest, 150 ft (46 m) upstream from bridge in National Forest campground, 6.4 mi (10.3 km) northwest of Cliffdell.	40.8	1912, 1970, 1973	2-18-77 5-26-77 8-16-77	14.9 12.0 3.22
Little Naches River	Naches River	Lat 46°59'17", long 121°05'30", in NW¼SE¼ sec.4, T.17 N., R.14 E., Yakima-Kittitas County line, Snoqualmie National Forest, at mouth, 300 ft (91 m) upstream from U.S. Highway 410 crossing, 3.5 mi (5.6 km) northwest of Cliffdell.	148	1912, 1970, 1973	2-18-77 5-26-77 8-16-77	106 242 28.9
12487400 Deep Creek	Bumping River	Lat 46°47'30", long 121°19'30", in NW¼ sec.15, T.15 N., R.12 E., Yakima County, at Forest Service road, 4.2 mi (6.8 km) above mouth and 8 mi (12.9 km) southwest of Goose Prairie.	12.7	1966-73a, 1963-67, 1969, 1971-72, 1975	5-26-77 8-16-77	60.7 4.92
12488300 American River tributary	American River	Lat 46°57'59", long 121°15'18", in NW¼NW¼ sec.17, T.17 N., R.13 E. (unsurveyed), Yakima County, at U.S. Highway 410, 19 mi (30.6 km) northwest of Nile.	1.10	1955-74a, 1959, 1963-65, 1967, 1970-72	2-18-77	.15
Rattlesnake Creek	Naches River	Lat 46°49'10", long 120°56'07", in SE¼ sec.3, T.15 N., R.15 E., Yakima County, 200 ft (61 m) above road crossing, 50 ft (15 m) above diversion, 0.3 mi (0.5 km) above mouth and 0.5 mi (0.8 km) northwest of Nile.	134	1904, 1910, 1912, 1922-23, 1963, 1967, 1970	2-18-77 5-26-77 8-16-77	47.6 115 11.7
North Fork Tieton River	Do......	Lat 43°37'20", long 121°17'56", in SW¼ sec.11, T.13 N., R.12 E., Yakima County, just upstream from Clear Lake, at county road bridge, 4.4 mi (7.1 km) east of White Pass.	---	---	5-26-77 8-12-77	117 113
Do......	Do......	Lat 46°37'43", long 121°16'08", in SE¼ sec.12, T.13 N., R.12 E., Yakima County, ¼ mi upstream from Rimrock Lake, at county road bridge, 5.8 mi (9.3 km) east of White Pass.	---	---	2-18-77 8-12-77	48.7 172
12491700 Hause Creek	Tieton River	Lat 46°40'33", long 121°04'49", in SE¼ sec.28, T.14 N., R.14 E., Yakima County, at State Highway 14, 0.1 mi (0.2 km) west of Tieton Ranger Station and 2.5 mi (4.0 km) east of Rimrock.	3.91	1955-76a, 1967, 1969, 1971, 1976	5-26-77 8-12-77	.08 0
Naches River	Yakima River	Lat 46°37'42", long 120°31'10", in SE¼SE¼ sec.12, T.13 N., R.18 E., Yakima County, at upstream side of Yakima Valley Transportation Company railway bridge, 0.2 mi (0.3 km) above upstream Interstate bridge, and 0.3 mi (0.5 km) above mouth.	1,106	1893-1915, 1973-75	2-22-77 5-26-77 8-17-77	257 582 1,030
Wide Hollow Creek	Do......	Lat 46°33'27", long 120°30'04", in SW¼NW¼ sec.6, T.12 N., R.19 E., Yakima County, at bridge on Goodman Road, about 1 mi (1.6 km) west of Union Gap.	64.0b	1971-75	2-22-77 5-26-77 8-15-77	8.77 44.4 26.0
12506000 Toppenish Creek	Yakima River	Lat 46°18'38", long 120°47'20", in SE¼SW¼ sec.35, T.10 N., R.16 E., Yakima County, 60 ft (18 m) above diversion, 5.7 mi (9.2 km) southwest of White Swan.	122	---	5-26-77 8-17-77	24.5 10.0
12506300 North Fork Simcoe Creek	Simcoe Creek	Lat 46°27'27", long 120°52'04", in SW¼SE¼ sec.7, T.11 N., R.16 E., Yakima County, 0.9 mi (1.4 km) above mouth, just above diversion 8.3 mi (13.4 km) from White Swan.	24.8	1971-72‡	5-26-77 8-16-77	5.45 2.58
12506330 South Fork Simcoe Creek	Do......	Lat 46°26'41", long 120°53'08", in NE¼NE¼ sec.13, T.11 N., R.15 E., Yakima County, 1.3 mi (2.1 km) above mouth and 8.6 mi (13.8 km) northwest of White Swan.	18.2	1971-72‡	5-26-77 8-16-77	3.88 .94

‡ Operated as a continuous-record station.
a Operated as a crest-stage gage.
b Approximately

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Yakima River basin--Continued				
Toppenish Creek	Yakima River	Lat 46°18'28", long 120°11'20", in NW¼SW¼ sec.33, T.10 N., R.21 E., Yakima County, Yakima Indian Reservation, at B.I.A. gage, 1.7 mi (2.7 km) above mouth, and 2.2 mi (3.5 km) south of Granger.	---	1973-75	2-23-77 5-27-77	221 21.7
12507600 Shinando (formerly Shenandoah) Creek	Satus Creek	Lat 46°00'17", long 120°38'32", in NE¼ sec.14, T.6 N., R.17 E., Klickitat County, at U.S. Highway 97, 2 mi (3.2 km) northeast of Satus Pass, and 14 mi (22.5 km) northeast of Goldendale.	.38	1951-74a, 1976	3-31-77 8-17-77	0 0
Satus Creek	Yakima River	Lat 46°01'40", long 120°37'00", in SE¼SE¼ sec.1, T.6 N., R.17 E., Klickitat County, 1.7 mi north of Satus Pass on U.S. Highway 97.	---	---	2-17-77 5-26-77 8-17-77	6.81 9.12 1.61
12507660 Satus Creek tributary	Satus Creek	Lat 46°03'27", long 120°32'57", in NW¼SE¼ sec.11, T.7 N., R.18 E., Yakima County, on U.S. Highway 97, 23 mi (37.0 km) south of Toppenish.	8.54	1953a, 1956a, 1961a, 1963-74a, 1966-71, 1975	2-17-77 5-26-77 7- 5-77 8-17-77	.07 .02 .02 0
Logy Creek	Do.......	Lat 46°13'03", long 120°28'33", in SW¼SW¼ sec.31, T.9 N., R.19 E., Yakima County, 1.3 mi (2.1 km) upstream from mouth and 14.5 mi (23.3 km) southwest of Toppenish.	97.3	1976	2-23-77 5-26-77 8-17-77	16 22 8.56
12508480 Dry Creek	Do.......	Lat 46°13'13", long 120°24'09", in SW¼NW¼ sec.23, T.9 N., R.19 E., Yakima County, at U.S. Highway 97 crossing, 0.8 mi (1.3 km) upstream from mouth, and 10 mi (16.1 km) southwest of Toppenish.	158	1971-76a	2-23-77 5-25-77 8- 3-77	7.21 3.88 0
Satus Creek	Yakima River	Lat 46°16'32", long 120°08'16", in SE¼SW¼ sec.12, T.9 N., R.21 E., Yakima County, Yakima Indian Reservation, at B.I.A. gage, 2.6 mi (4.2 km) above mouth and 0.7 mi (1.1 km) northeast of Satus.	612b	1974-75	2-23-77 5-27-77	54.6 38.3
		Snake River basin				
Grande Ronde River	Snake River	Lat 46°04'13", long 117°00'16", in NW¼SE¼ sec.21, T.7 N., R.46 E., Asotin County, at county road bridge 2.8 mi (4.5 km) from the mouth, 1.5 mi (2.4 km) downstream from Joseph Creek, and 8 mi (13 km) southeast of Anatone.	---	1976	9-23-76 10-12-76 12- 9-76 2- 9-77 3-29-77 5-24-77	c1,020 902 616 786 1,300 3,210
Couse Creek	Do.......	Lat 46°11'17", long 116°59'19", in SE¼NE¼ sec.11, T.8 N., R.46 E., Asotin County, 3.3 mi (5.3 km) above mouth and 6 mi (10 km) southeast of Asotin.	20.2	---	5- 9-77	1,160
Asotin Creek	Do.......	Lat 46°20'25", long 117°03'18", in NW¼SW¼ sec.16, T.10 N., R.46 E., Asotin County, 0.25 mi (0.40 km) from mouth at Asotin and on Second Street.	---	1976	9-23-76 10-13-76 12- 9-76 5-24-77 7-13-77	c44.2 44.8 43.6 60.6 27.6
		Alpowa Creek basin				
13343510 Alpowa Creek	Snake River	Lat 46°19'03", long 117°29'28", in SW¼SE¼ sec.23, T.10 N., R.42 E., Garfield County, at State Highway 128, 0.8 mi (1.3 km) northwest of Peola.	0.50	1972-74a, 1975	4-19-77 6-20-77 8- 9-77	0 0 0
		Deadman Creek basin				
13343600 Deadman Creek	Snake River	Lat 46°37'08", long 117°43'06", in SE¼SW¼ sec.11, T.13 N., R.40 E., Garfield County, 0.2 mi (0.3 km) above Willow Gulch, and 7.2 mi (11.6 km) northeast of Dodge.	---	1970	4-19-77 8- 4-77	1.17 1.22
13343800 Meadow Creek	Deadman Creek	Lat 46°33'41", long 117°46'54", in SE¼SW¼ sec.11, T.13 N., R.40 E., Garfield County, at county bridge, 1.3 mi (2.1 km) upstream from mouth, 2.0 mi (3.2 km) southeast of Central Ferry, and 5.4 mi (8.7 km) north of Dodge.	66.2	1963-74a, 1975-76a, 1975	4-19-77 8- 4-77	2.13 1.19
		Tucannon River basin				
Tucannon River	Snake River	Lat 46°14'36", long 117°41'15", in SE¼SW¼ sec.21, T.9 N., R.41 E., Columbia County, 2.0 mi (3.2 km) downstream from Little Tucannon River, 14.0 mi (22.5 km) southeast of Dayton.	---	1964-69, 1975	2-10-77 4-20-77 8-16-77	34.0 40.7 40.1
13344300 Tucannon River	Do.......	Lat 46°26'23", long 117°44'56", in NE¼NW¼ sec.13, T.11 N., R.40 E., Columbia County, at Marengo, 7.5 mi (12.1 km) southwest of Pomeroy, 50 ft (15 m) above bridge.	160	1914-15a, 1924-30a, 1958, 1975	2-10-77 4-20-77 8-10-77	86.9 88.5 53.5

a Operated as continuous-record station.
d Operated as a crest-stage gage.
b Approximately.
c Not previously published.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Tucannon River basin--Continued				
Pataha Creek	Tucannon River	Lat 46°21'40", long 117°33'21", in NW¼SE¼ sec.9, T.10 N., R.42 E., Garfield County, at State Highway 128, 200 ft (61 m) downstream from East Fork Pataha Creek at Columbia Center, 7.5 mi (12.1 km) south of Pomeroy.	26.5	1964-69, 1973	2-10-77 4-19-77 8- 9-77	1.09 3.57 .39
Do........	Do........	Lat 46°30'44", long 117°58'16", in NW¼SE¼ sec.19, T.12 N., R.39 E., Columbia County, at State Highway 261 crossing at Delaney, 1.2 mi (1.9 km) upstream from mouth, 7.5 mi (12.1 km) east of Starbuck.	---	---	4-20-77 8- 4-77	7.02 0
		Palouse River basin				
Paradise Creek	South Fork Palouse River	Lat 46°43'16", long 117°08'10", in NW¼SW¼ sec.3, T.14 N., R.45 E., Whitman County, at private road bridge, 0.7 mi (1.1 km) southeast of Pullman city limits, 0.9 mi (1.4 km) upstream from former gaging station 13347000, 7.4 mi (1.3 km) upstream from mouth.	28.4a	1974-75	2-28-77 4-22-77 8-26-77	3.32 2.03 2.91
13349400 Pine Creek	Rock Creek	Lat 47°12'24", long 117°30'14", on line between SW¼ AND NE¼ sec.27, T.20 N., R.41 E., Whitman County, 1.0 mi (1.6 km) east of Pine City and 2.3 mi (3.7 km) west of Malden.	302b	1961-71‡, 1976*	2-28-77 4-22-77 8-22-77	12.6 7.25 .89
Rock Creek	Palouse River	Lat 47°07'27", long 117°44'52", in SE¼SE¼ sec.22, T.19 N., R.40 E., Whitman County, 1.0 mi (1.6 km) downstream from Rock Lake, at State Highway 23 crossing, 0.9 mi (1.4 km) northwest of Ewan.	526c	1951-73	2-28-77 4-22-77 8-22-77	24.5 8.60 e.03
13350500 Union Flat Creek	Do........	Lat 46°48'37", long 117°25'32", in NW¼SW¼ sec.8, T.15 N., R.43 E., Whitman County, 20 ft (6 m) upstream from county road bridge 6.0 mi (9.7 km) southwest of Colfax and at mile 12.3.	189	1953-72‡	2-28-77 4-22-77 8- 1-77	18.3 10.2 2.13
Willow Creek	Do........	Lat 46°56'42", long 117°36'58", in NE¼SW¼ sec.20, T.15 N., R.38 E., Whitman County, 4.0 mi (6.4 km) southeast of LaCrosse, 3.0 mi (3.8 km) east of Gordon.	---	---	3-18-77 8- 4-77	1.63 .50
Negro Creek	Sprague Lake	Lat 47°17'58", long 117°58'33", in SE¼SE¼ sec.23, T.21 N., R.38 E., Lincoln County, at Sprague, 600 ft (183 m) downstream from State Highway 23.	267	1956	3-25-77 4-21-77 8-22-77	0 0 0
13351900 Cow Creek	Palouse River	Lat 47°13'22", long 118°28'52", in NW¼SE¼ sec.14, T.20 N., R.37 E., Adams County, at county road (formerly U.S. Highway 10) crossing, 1.0 mi (1.6 km) downstream from Colville (Sprague) Lake, 10 mi (16.1 km) southwest of Sprague.	282	1904, 1905, 1912-13, 1956, 1962-72	2-24-77 4-18-77 8-22-77	1.18 .23 0
13352500 Cow Creek	Do........	Lat 46°45'48", long 118°08'44", in NW¼NW¼ sec.28, T.15 N., R.37 E., Adams County, on county road bridge, 0.5 mi (0.8 km) upstream from mouth and 0.5 mi (0.8 km) north of Hooper.	479	1951-56‡, 1962-70‡, 1971-76* 1973	4-18-77 8- 4-77	2.36 0
		Walla Walla River basin				
[illegible] Creek	Walla Walla River	Lat 45°58'31", long 118°17'12", in NW¼SW¼ sec.28, T.6 N., R.36 E., Umatilla County, at county road crossing, 5.5 mi (8.8 km) above mouth, 2.6 mi (4.2 km) east of Spofford, Oregon.	---	1970-71, 1973	2-12-77 4-25-77 8-11-77	0.58 .83 .40
14012800 Walla Walla River	Columbia River	Lat 46°00'43", long 118°23'38", in NE¼SE¼ sec.11, T.6 N., R.35 E., Walla Walla County, at bridge at State Highway 125, 2.4 mi (3.9 km) south of Walla Walla College in College Place.	---	1971, 1973-75	2-12-77 4-22-77 8- 1-77 8- 5-77 8-26-77	111 58.8 3.15 4.43 9.84
14013000 Mill Creek	Walla Walla River	Lat 46°00'29", long 118°02'03", in SW¼SW¼ sec.7, T.6 N., R.38 E., Walla Walla County, 0.1 mi (0.2 km) downstream from Railroad Canyon, 4.0 (6.4 km) downstream from city of Walla Walla diversion dam, 4.4 mi (7.1 km) upstream from Blue Creek, 11.5 mi (18.5 km) southeast of Walla Walla, and at mile 21.2 (34.1 km).	59.6	1913-17, 1938, 1939-76‡	2-12-77 4-25-77 8-10-77	46 73 24
14013500 Blue Creek	Mill Creek	Lat 46°03'28", long 118°08'17", in NE¼NE¼ sec.26, T.7 N., R.37 E., Walla Walla County, 0.2 mi (0.3 km) upstream from Nightingale Canyon, 0.8 mi (1.3 km) upstream from mouth, and 9.5 mi (15.3 km) east of Walla Walla.	17.0	1939-71‡, 1973	2-12-77 4-22-77 8-10-77	1.80 3.90 .37
14015000 Mill Creek	Walla Walla River	Lat 46°04'33", long 118°11'20", in NE¼SW¼ sec.16, T.7 N., R.37 E., Walla Walla County, 2.4 mi (3.9 km) downstream from Blue Creek, 6.0 mi (9.7 km) east of Walla Walla.	91.0	1966-68, 1970-71, 1973	4-22-77 8-11-77	77.3 27.6
Russell Creek	Yellowhawk Creek	Lat 46°01'46", long 118°20'37", in SW¼NW¼ sec.5, T.6 N., R.36 E., Walla Walla County, at county road crossing, 0.1 mi (0.2 km) upstream from mouth, 0.2 mi (0.3 km) west of Langdon.	---	1970-73	2-12-77 4-22-77 8-11-77	1.55 2.17 1.73

‡ Operated as a continuous-record gaging station.
* Operated as a crest-stage gage.
e Estimated.
a Includes 7.08 mi² in Washington.
b Includes 281 mi² in Washington.
c Includes 505 mi² in Washington.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements Date	Measurements Discharge (cfs)
Walla Walla River basin--Continued						
Cottonwood Creek	Yellowhawk Creek	Lat 46°01'33", long 118°20'42", in NW¼SE¼ sec.6, T.6 N., R.36 E., Walla Walla County, at county road crossing, 1.0 mi (1.6 km) upstream from mouth, 0.4 mi (0.6 km) southwest of Langdon.	---	1970-73	2-12-77 4-22-77 8-11-77	.20 9.61 .04
14014400 Yellowhawk Creek	Walla Walla River	Lat 46°01'09", long 118°23'34", in SE¼NW¼ sec.11, T.6 N., R.35 E., Walla Walla County, at county road crossing, 0.2 mi (0.3 km) upstream from mouth, 1.1 mi (1.8 km) south of College Place.	49.6	1962-65, 1967, 1970-73	2-12-77 4-22-77 8-11-77	34.1 34.7 6.96
East Little Walla Walla River	Do......	Lat 46°00'48", long 118°24'38", in NW¼NW¼ Land Grant 38, Walla Walla County, at county road crossing, 0.6 mi (1.0 km) upstream from mouth, 0.8 mi (1.3 km) north of State Line, Washington.	---	1973	4-26-77 8-11-77	12.3 3.14
Mill Creek	Do......	Lat 46°02'31", long 118°28'11", in SE¼NW¼ Land Grant 38, T.7 N., R.35 E., Walla Walla County, at county road bridge, 0.1 mi (0.2 km) above Doan Creek, 0.4 mi (0.6 km) above mouth, 0.4 mi (0.6 km) west of Whitman Mission.	---	1973-75	2-12-77 4-26-77 8-11-77	29.3 32.7 1.34
14016000 Dry Creek	Do......	Lat 46°07'20", long 118°14'10", on south line SW¼ sec.31, T.8 N., R.37 E., Walla Walla County, 1 mi (1.6 km) downstream from Spring Creek, 6 mi (9.6 km) northeast of Walla Walla.	48.4	1949-67‡	2-11-77 4-21-77 8-10-77	6.39 9.91 .30
14016050 Dry Creek	Do......	Lat 46°03'25", long 118°35'23", in SE¼NW¼ sec.29, T.7 N., R.34 E., Walla Walla County, at bridge crossing, on U.S. Highway 410, 0.4 mi (0.6 km) above mouth, 0.1 mi (0.2 km) west of Lowden.	246	1962-65, 1973	2-11-77 4-26-77 8-12-77	8.30 4.70 .23
Mud Creek	Do......	Lat 46°02'32", long 118°36'49", in SW¼NW¼ sec.31, T.7 N., R.34 E., Walla Walla County, at county road crossing, 50 ft (15 m) above diversion 0.6 mi (1.0 km) upstream from mouth, 1.7 mi (2.7 km) southwest of Lowden.	---	1970-73	4-25-77 8-12-77	10.4 .34
Pine Creek	Do......	Lat 45°57'17", long 118°32'04", in NW¼SW¼ sec.35, T.6 N., R.34 E., Umatilla County, at farm bridge, 1.5 mi (2.4 km) upstream from Dry Creek, 2.4 mi (3.9 km) southeast of Umapine, Oregon.	---	1971-73	2-12-77 4-25-77 8-11-77	0 .75 .02
Dry Creek	Pine Creek	Lat 45°56'13", long 118°27'02", in NW¼SW¼ sec.4, T.5 N., R.35 E., Umatilla County, 500 ft (150 m) above diversion, 0.7 mi (1.1 km) south of Barrett, Oregon, 5.2 mi (8.4 km) upstream from mouth.	---	1970-73	2-12-77 4-25-77 8-11-77	.82 1.45 0
14018100 Pine Creek	Walla Walla River	Lat 46°01'12", long 118°30'26", in SE¼NE¼ sec.2, T.6 N., R.33 E., Walla Walla County, at farm bridge 0.8 mi (1.3 km) upstream from mouth, 1.6 mi (2.6 km) southeast of Touchet.	---	1970-73	2-12-77 4-25-77 8-12-77	14.3 16.4 .37
Wolf Creek	East Fork Touchet River	Lat 46°14'18", long 117°53'42", in SW¼SE¼ sec.23, T.9 N., R.38 E., Columbia County, 200 ft (61 m) below Robinson Fork, 7.0 mi (11.3 km) southeast of Dayton.	---	1973	2-11-77 4-20-77 8-10-77	37.7 41.6 23.1
14016100 East Fork Touchet River	Touchet River	Lat 46°16'46", long 117°56'04", in NW¼NW¼ sec.11, T.9 N., R.39 E., Columbia County, 20 ft (6 m) upstream from Dayton water supply headworks, 200 ft (61 m) upstream from Bailey Creek, 0.8 mi (1.3 km) downstream from Wolf Creek, 3.0 mi (4.8 km) upstream from confluence with South Fork, 5 mi (8.4 km) southeast of Dayton.	102	1941-51‡, 1956-68‡, 1973	2-11-77 4-20-77 8-10-77	58.1 77.6 37.0
South Fork Touchet River	Do......	Lat 46°18'04", long 117°57'10", in NW¼SE¼ sec.32, T.10 N., R.39 E., Columbia County, 200 ft (61 m) above mouth, 1.7 mi (2.7 km) southeast from intersection of Highway 12 and Fourth Street in Dayton.	63.0	1941-48, 1973	2-11-77 4-20-77 8-10-77	8.65 20.9 .75
14016800 Patit Creek	Do......	Lat 46°19'38", long 117°58'12", in SE¼SE¼ sec.19 T.10 N., R.39 E., Columbia County, at U.S. Highway 12 crossing in Dayton, 0.9 mi (1.4 km) upstream from mouth.	---	---	4-20-77 8-10-77	2.90 .03
14016910 Coppei Creek	Do......	Lat 46°13'13", long 118°09'08", in SW¼NW¼ sec.14, T.9 N., R.37 E., Walla Walla County, at U.S. Highway 12 road crossing, 1.3 mi (2.1 km) above mouth, 0.5 mi (0.8 km) south of Waitsburg.	36.1	1962-65, 1972,	2-11-77 4-21-77 8-10-77	4.52 5.43 .94
14017070 East Fork McKay Creek	McKay Creek	Lat 46°23'47", long 118°07'57", in SW¼NW¼ sec.12, T.10 N., R.37 E., Columbia County, at county road 1.7 mi (2.7 km) southwest of Alto.	4.92	1963-64a, 1966, 1967-72a, 1973	4-21-77 8- 9-77	.74 .33

‡ Operated as a continuous-record gaging station.
a Operated as a crest-stage gage.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Walla Walla River basin--Continued				
14017600 Touchet River	Walla Walla River	Lat 46°02'29", long 118°40'59", in NE¼SE¼ sec.33, T.7 N., R.33 E., Walla Walla County, at U.S. Highway 410 crossing, 0.5 mi (0.8 km) west of Touchet, 0.6 mi (1.0 km) above mouth.	747	1962-65, 1972-75	2-11-77 4-25-77 8- 1-77 8- 5-77 9-20-77	87.0 79.1 1.52 10.3 4.89
		Glade Creek basin				
Glade Creek	Columbia River	Lat 45°53'40", long 119°41'31", in NW¼NE¼ sec.28, T.5 N., R.25 E., Benton County, at State Highway 14 crossing, 0.5 mi (0.8 km) above mouth, 5.5 mi (8.8 km) southwest of Patterson.	428	---	2-14-77 6- 3-77 8-12-77	4.8 6.63 5.01
		Alder Creek basin				
Alder Creek	Columbia River	Lat 45°59'49", long 120°16'31", in NE¼NW¼ sec.23, T.6 N., R.20 E., Klickitat County, at county road 1.3 mi (2.1 km) east of Bickleton.	8.35	1963-76[a], 1964-65, 1967, 1973-75	2-14-77 6- 3-77 8-12-77	0.25 .05 0
Do......	Do......	Lat 45°50'30", long 119°55'30", in NE¼SW¼ sec.10, T.4 N., R.23 E., Klickitat County, 1.0 mi (1.6 km) upstream from mouth and 0.5 mi (0.8 km) north of Alderdale.	197	1962-68‡, 1973	2-14-77 6- 3-77 8-12-77	.65 .40 3.35
		Wood Gulch basin				
Wood Gulch	Columbia River	Lat 45°45'00", long 120°11'58", in SW¼SW¼ sec.9, T.3 N., R.21 E., Klickitat County, 0.2 mi (0.3 km) above mouth, and 0.7 mi (1.1 km) northwest of Roosevelt.	60.0	---	2-14-77 7- 6-77 8-12-77	e0.10 0 0
		Rock Creek basin				
Rock Creek	Columbia River	Lat 45°50'31", long 120°31'49", in SW¼SW¼ sec.11, T.4 N., R.18 E., Klickitat County, at county road crossing 15 mi (24 km) northeast of Goldendale.	67.6	---	2-14-77 6- 3-77 8-12-77	2.29 1.38 .18
14036600 Rock Creek	Do......	Lat 45°44'55", long 120°26'04", in W½NE¼ sec.16, T.3 N., R.19 E., Klickitat County, at county highway bridge.	213	1962-68‡, 1973	2-14-77 6- 3-77 8-12-77	6.51 3.15 0
		Klickitat River basin				
McCreedy Creek	Klickitat River	Lat 46°19'21", long 121°15'06", in SE¼NE¼ sec.25, T.10 N., R.12 E., Yakima County, Yakima Indian Reservation, 300 ft (91 m) upstream from mouth, 21.2 mi (34.1 km) north of Glenwood.	18.0	1973	2-17-77 6- 1-77 8-11-77	26.4 38.1 20.2
14016500 Pearl Creek	Do......	Lat 46°18'42", long 121°15'36", in NE¼NW¼ sec.36, T.10 N., R.12 E., Yakima County, Yakima Indian Reservation, at mouth, 20.5 mi (33.0 km) north of Glenwood.	4.31	1916‡, 1973	2-17-77 6- 1-77 8-11-77	e.25 .62 .25
Chaparrel Creek	Do......	Lat 46°17'44", long 121°16'10", in SW¼NW¼ sec.1, T.9 N., R.12 E., Yakima County, Yakima Indian Reservation, 0.2 mi (0.3 km) upstream from mouth, 19.1 mi (30.7 km) north of Glenwood.	3.88[b]	1973	2-17-77 6- 1-77 8-11-77	.58 .49 .11
14108500 Cunningham Creek	Do......	Lat 46°10'48", long 121°17'08", in NW¼SE¼ sec.15, T.8 N., R.12 E., Yakima County, Yakima Indian Reservation, 0.8 mi (1.3 km) above mouth, 11.2 mi (18.0 km) north of Glenwood.	15.4	1916‡, 1973	2-17-77 6- 1-77 8-13-77	7.83 8.09 5.68
14110000 Klickitat River	Columbia River	Lat 46°05'20", long 121°15'30", in SE¼ sec.14, T.7 N., R.12 E., Yakima County, 0.4 mi (0.6 km) downstream from Dairy Creek and 5.2 mi (8.4 km) north of Glenwood.	360	1909-71‡, 1972-76[a], 1974, 1976	2-17-77 6- 2-77 8-11-77	380 565 325
Trout Creek	Klickitat River	Lat 46°02'23", long 121°11'50", in SE¼NE¼ sec.5, T.6 N., R.13 E., Klickitat County, 0.2 mi (0.3 km) upstream from mouth, 0.7 mi (1.1 km) west of Klickitat State Fish Hatchery, 4.7 mi (7.6 km) east of Glenwood.	42.2	1974-75	2-17-77 6- 2-77 8-11-77	3.27 2.41 1.79
Elk Creek	Do......	Lat 46°02'22", long 121°11'34", in SW¼NW¼ sec.4, T.6 N., R.13 E., Klickitat County, at road crossing 1.5 mi (0.8 km) west of Klickitat State Fish Hatchery, 0.1 mi (0.2 km) above mouth.	12.3	1975	2-17-77 6- 2-77 8-11-77	e.10 e.10 e.07
Wonder Spring	Do......	Lat 46°02'16", long 121°10'29", in SW¼NW¼ sec.3, T.6 N., R.13 E., Klickitat County, 0.2 mi (0.3 km) upstream from mouth, 0.4 mi (0.6 km) southeast of Klickitat State Fish Hatchery, 5.7 mi (9.2 km) east of Glenwood.	---	1974-75	2-17-77 6- 2-77 8-11-77	33.0 21.6 19.9

‡ Operated as a continuous-record gaging station.
[a] Operated as a crest-stage gage.
[b] Approximately
e Estimated.

Discharge measurements made at miscellaneous sites during water year 1977

Stream	Tributary to	Location	Drainage area (sq mi)	Measured previously (water years)	Measurements	
					Date	Discharge (cfs)
		Klickitat River basin--Continued				
Outlet Creek	Klickitat River	Lat 46°00'59", long 121°11'20", in SE¼SW¼ sec.9, T.6 N., R.13 E., Klickitat County, 0.9 mi (1.4 km) upstream from Outlet Falls, 4.8 mi (7.7 km) east of Glenwood.	128	1974-75	2-17-77 6- 2-77 8-11-77	4.65 .13 0
White Creek	Do......	Lat 46°00'54", long 121°08'51", in SE¼SW¼ sec.11, T.6 N., R.13 E., Klickitat County, 0.2 mi (0.3 km) upstream from mouth, 6.8 mi (10.9 km) east of Glenwood.	130	1974-75	2-17-77 6- 2-77 8-11-77	e.30 .21 0
Summit Creek	Do......	Lat 45°59'19", long 121°07'23", in SW¼SE¼ sec.24, T.6 N., R.13 E., Klickitat County, 0.2 mi (0.3 km) upstream from mouth, 9.6 mi (15.4 km) southeast of Glenwood.	44.8	1974-75	2-17-77 6- 2-77 8-11-77	14.8 12.3 8.24
14111800 West Prong Little Klickitat River	Little Klickitat River	Lat 45°55'30", long 120°43'11", in NE¼ sec.18, T.5 N., R.17 E., Klickitat County, at private logging road 9 mi (14.5 km) northeast of Goldendale.	10.4	1961-75a, 1970-71, 1973-75	2-17-77 5-31-77 8-10-77	1.18 1.11 .21
14112000 Little Klickitat River	Klicktat River	Lat 45°50'40", long 120°47'42", in NE¼SW¼ sec.10, T.4 N., R.16 E., Klickitat County, 400 ft (122 m) upstream from State Highway 97 bridge, and 2.1 mi (3.4 km) northeast of Goldendale.	83.5	1911-12‡, 1947-51‡, 1958-70‡, 1971-76a, 1973, 1975-76	2-17-77 5-31-77 8-10-77	6.40 5.81 0
14112400 Mill Creek	Little Klickitat River	Lat 45°51'34", long 120°57'49", in NW¼SW¼ sec.5, T.4 N., R.15 E., Klickitat County, 1.9 mi (3.1 km) northwest of Blockhouse and 3.5 mi (5.6 km) upstream from mouth.	26.9	1964-72‡, 1973-76a, 1973	2-17-77 6- 2-77 8-12-77	5.52 2.44 1.03
Mill Creek tributary	Mill Creek	Lat 45°51'[illegible]9", long 120°58'03", in NE¼SE¼ sec.6, T.4 N., [illegible]15 E., Klickitat County, at State Highway [illegible]2, 2.9 mi (4.6 km) west of Blockhouse, 0.3 mi [illegible].5 km) above mouth.	---	---	2-17-77	.78
14112490 Bowman Creek	Little Klickitat River	Lat 45°50'56", long 121°01'27", in SE¼NW¼ sec.10, T.4 N., R.14 E., Klickitat County, at road crossing 0.5 mi (0.8 km) downstream from Canyon Creek, 0.5 mi (0.8 km) upstream from mouth, and 3.2 mi (5.1 km) northeast of Wahkiacus.	60.1	1961, 1965, 1974-75a, 1975-76	2-17-77 6- 1-77 8-10-77	3.97 3.46 .97

‡ Operated as a continuous-record station.
a Operated as a crest-stage gage.
e Estimated.

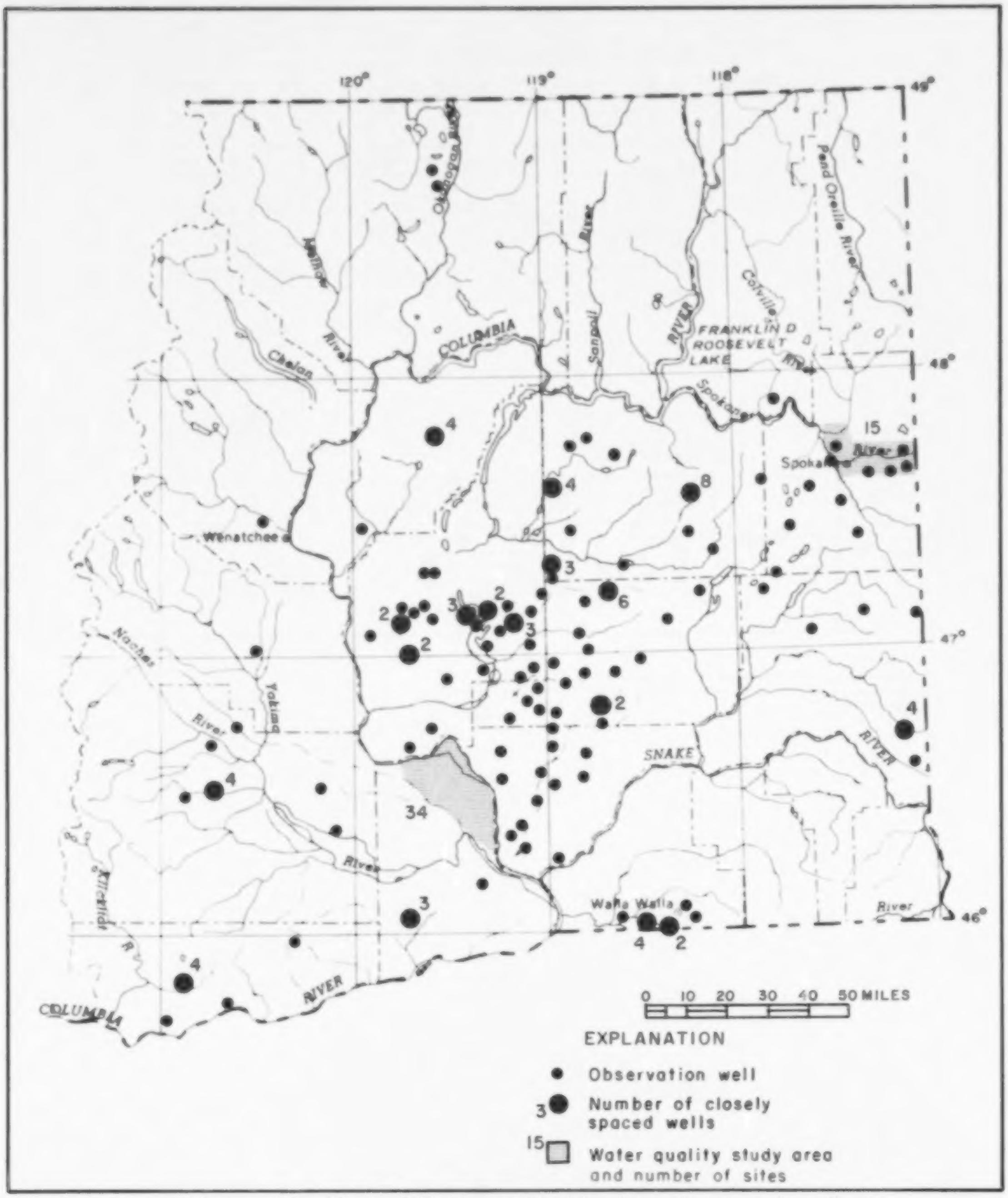
120°
119°
118°
49°
48°
47°
46°
Okanogan River
Methow River
Chelan
COLUMBIA
Sanpoil River
RIVER
FRANKLIN D ROOSEVELT LAKE
Colville River
Pend Oreille River
Spokane
Spokane
River
Wenatchee
Naches River
Yakima River
Klickitat R
SNAKE
RIVER
River
River
Walla Walla
COLUMBIA
RIVER
15
34
0 10 20 30 40 50 MILES
EXPLANATION
Observation well
3 Number of closely spaced wells
15 Water quality study area and number of sites

Figure 19. Map of Eastern Washington showing locations of ground-water level observations.

ADAMS COUNTY

464413118585601. Local number, 15/31-31N1.
LOCATION.--Lat 46°44'13", long 118°58'56", Hydrologic Unit 17020016.
Owner: Burl Egbert.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 280 ft (85.3 m), cased to 80 ft (24.4 m).
DATUM.--Land-surface datum is 1,154 ft (351.7 m) above mean sea level.
PERIOD OF RECORD.--October 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 160.0 ft (48.77 m) below land-surface datum, Sept. 29, 1976; lowest measured, 175.5 ft (53.49 m) below land-surface datum, Aug. 1, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 22, 1976	168.1	Apr. 4, 1977	174.7	Aug. 1, 1977	175.5	Sept. 29, 1977	171.85
Jan. 26, 1977	165.8	May 25	174.8				

464603119085201 Local number, 15/29-26C1.
LOCATION.--Lat 46°46'03", long 119°08'52", Hydrologic Unit 17020016, at Othello.
Owner: Brick Patterson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 257 ft (78.3 m), cased to 150 ft (45.7 m).
DATUM.--Land-surface datum about 1,030 ft (314 m) above mean sea level.
PERIOD OF RECORD.--September 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 96.71 ft (29.477 m) below land-surface datum, Dec. 16, 1975; lowest measured, 197.91 ft (60.323 m) below land-surface datum, Apr. 2, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	99.00	Feb. 14, 1977	135.7	June 13, 1977	114.7	Aug. 1, 1977	116.2
Dec. 7	102.2	Apr. 11	122.7				

464740118444001. Local Number 15/32-13D1.
LOCATION.--Lat 46°47'40", long 118°44'40", Hydrologic Unit 17020016.
Owner: State of Washington, Department of Highways.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 12 in (300 mm), depth 602 ft (183.5 m), cased to 63 ft (19.2 m).
DATUM.--Land-surface datum about 1,216 ft (370.6 m) above mean sea level.
PERIOD OF RECORD.--June 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 170.12 ft (51.853 m) below land-surface datum, Nov. 25, 1962; lowest measured, 188.61 ft (57.488 m) below land-surface datum, Oct. 5, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	186.2	Feb. 14, 1977	186.4	Apr. 11, 1977	188.6B	June 13, 1977	188.2A
Dec. 6	187.8						

464927118580001 Local number, 16/31-31R1.
LOCATION.--Lat 46°49'27", long 118°58'00", Hydrologic Unit 17020016.
Owner: Earl Wirth.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled Domestic water-table well, diameter 6 in (150 mm), depth 496 ft (151.2 m).
DATUM.--Land-surface datum is 1,308 ft (398.7 m) above mean sea level.
PERIOD OF RECORD.--October 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 283.7 ft (86.47 m) below land-surface datum, Mar. 25, 1975; lowest measured, 412.6 ft (125.76 m) below land-surface datum, July 30, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 22, 1976	412.3B	Jan. 26, 1977	301.6	May 25, 1977	327.4		

465100118435301 Local number, 16/32-25A1.
LOCATION.--Lat 46°51'00", long 118°43'53", Hydrologic Unit 17020016.
Owner: D. E. Phillips.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 812 ft (247.5 m), cased to 82 ft (25.0 m).
DATUM.--Land-surface datum is 1,457 ft (444.1 m) above mean sea level.
PERIOD OF RECORD.--April 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 312.16 ft (95.146 m) below land-surface datum, Sept. 3, 1974; lowest measured, 491 ft (149.7 m) below land-surface datum, Aug. 1, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	435	Jan. 25, 1977	397.50	Apr. 11, 1977	419	Aug. 1, 1977	491A
Dec. 6	403	Feb. 14	394	June 13	486A		

A Well being pumped. B Well recently pumped.

ADAMS COUNTY--Continued

465100119001502 Local number, 16/30-26A2.
LOCATION.--Lat 46°51'00", long 119°00'13", Hydrologic Unit 17020016.
Owner: G.W. Kliphardt.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 600 ft (183 m).
DATUM.--Land-surface datum is 1,359 ft (414.2 m) above mean sea level.
PERIOD OF RECORD.--April 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 268.71 ft (81.903 m) below land-surface datum, Apr. 22, 1975; lowest measured, 482 ft (146.9 m) below land-surface datum, June 13, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	399	Feb. 14, 1977	309	June 13, 1977	482	Aug. 1, 1977	443
Dec. 6	341	Apr. 11	369				

465149119062801 Local number, 16/30-19E1.
LOCATION.--Lat 46°51'49", long 119°06'28", Hydrologic Unit 17020016.
Owner: H. F. Berg.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 487 ft (148.4 m).
DATUM.--Land-surface datum is 1,160 ft (354 m) above mean sea level.
PERIOD OF RECORD.--May 1958, March 1963, March 1968, April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.31 ft (14.725 m) below land-surface datum, Dec. 3, 1974; lowest measured, 189.90 ft (57.882 m) below land-surface datum, May 12, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	48.65	Feb. 14, 1977	50.14	June 13, 1977	52.62	Aug. 1, 1977	51.51B
Dec. 6	48.33	Apr. 11	51.96				

465250118450001 Local number, 16/32-14A1.
LOCATION.--Lat 46°52'50", long 118°45'00", Hydrologic Unit 17020016.
Owner: D. E. Phillips.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 765 ft (233.2 m), cased to 67 ft (20.4 m).
DATUM.--Land-surface datum is 1,464 ft (446.2 m) above mean sea level.
REMARKS.--Pump and columns removed prior to measurement on Jan. 25, 1977.
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 280.8 ft (85.59 m) below land-surface datum, Feb. 14, 1977; lowest measured, 451.50 ft (137.617 m) below land-surface datum, Aug. 27, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	424.60	Jan. 25, 1977	287.90	Apr. 11, 1977	402.6E	Aug. 1, 1977	348A
Dec. 8	403.8	Feb. 14	280.8				

465355119005401 Local number 16/30-2P1.
LOCATION.--Lat 46°53'55", long 119°00'54", Hydrologic Unit 17020015.
Owner: Clarence Kisler.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 590 ft (180 m).
DATUM.--Land-surface datum is 1,391 ft (424.0 m) above mean sea level.
PERIOD OF RECORD.--March 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 245.88 ft (74.944 m) below land-surface datum, Apr. 2, 1976; lowest measured, 251.72 ft (76.724 m) below land-surface datum, Mar. 13, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	248.87	Feb. 14, 1977	249.30	Apr. 11, 1977	249.83	Aug. 1, 1977	250.24
Dec. 6	249.27						

465526118543401 Local number, 17/31-34C1.
LOCATION.--Lat 46°55'26", long 118°54'34", Hydrologic Unit 17020015.
Owner: Erma Wells.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock water-table well, diameter 6 in (150 mm), depth 315 ft (96.0 m).
DATUM.--Land-surface datum is 1,413 ft (430.7 m) above mean sea level.
PERIOD OF RECORD.--January 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 153.91 ft (46.912 m) below land-surface datum, Feb. 18, 1975; lowest measured, 310.40 ft (94.610 m) below land-surface datum, Jan. 21, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	247.8	Jan. 24, 1977	283.5	Apr. 11, 1977	242.2	Aug. 1, 1977	243.5
Dec. 6	255.2	Feb. 14	255.8	June 13	244.3		

A Well being pumped.
B Well recently pumped.
E Well recently bailed.

ADAMS COUNTY--Continued

465700118510001. Local number, 17/32-19E1.
LOCATION.--Lat 46°57'00", long 118°51'00", Hydrologic Unit 17020015, at Roxboro.
Owner The Milwaukee Road.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 258 ft (78.6 m).
DATUM.--Land-surface datum about 1,260 ft (384 m) above mean sea level.
PERIOD OF RECORD.--June 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 104.96 ft (31.992 m) below land-surface datum, Jan. 29, 1963; lowest measured, 198.6 ft (60.53 m) below land-surface datum, June 13, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	187.2	Feb. 14, 1977	179.8	June 13, 1977	198.6	Aug. 1, 1977	189.8
Dec. 6	183.5	Apr. 11	188.0				

465730118410001. Local number, 17/33-17R1.
LOCATION.--46°57'30", 118°41'00", Hydrologic unit, 17020015.
Owner: D. E. Phillips.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 184 ft (56.1 m), cased to 80 ft (24.4 m).
DATUM.--Land-surface datum about 1,310 ft (399.3 m) above mean sea level.
REMARKS.--Pump installed December 1974.
PERIOD OF RECORD.--April 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.60 ft (9.327 m) below land-surface datum, Dec. 5, 1976; lowest measured, 47.32 ft (14.423 m) below land-surface datum, Jan. 29, 1965.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	34.58	Feb. 14, 1977	34.95	June 13, 1977	35.77	Aug. 1, 1977	35.05
Dec. 5	30.60	Apr. 11	42.20B				

465824118354903. Local number 17/34-7N1.
LOCATION.--Lat 46°58'24", long 118°55'49", Hydrologic Unit 17020015.
Owner: City of Lind.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 16 to 12 in (400 to 300 mm), depth 686 ft (209.1 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum about 1,404 ft (427.9 m) above mean sea level.
PERIOD OF RECORD.--June 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 105.60 ft (32.187 m) below land-surface datum, Apr. 7, 1969; lowest measured, 140.35 ft (42.779 m) below land-surface datum, Aug. 1, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	137.07	Feb. 14, 1977	135.48	June 13, 1977	139.42	Aug. 1, 1977	140.35
Dec. 6	135.50	Apr. 11	137.10				

465910118581001. Local number, 17/31-6P1.
LOCATION.--Lat 46°59'10", long 118°58'10", Hydrologic Unit 17020015, at Lind.
Owner: D. E. Phillips.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 129 ft (39.3 m).
DATUM.--Land-surface datum about 1,217 ft (370.9 m) above mean sea level.
PERIOD OF RECORD.--May 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.11 ft (8.568 m) below land-surface datum, Dec. 3, 1974; lowest measured, 72.87 ft (22.211 m) below land-surface datum, May 25, 1954.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	30.8	Feb. 2, 1977	32.5	June 14, 1977	34.30	Aug. 2, 1977	32.18
Dec. 8	30.5	Apr. 12	33.51				

470232118572901 Local number, 18/31-20D1.
LOCATION.--Lat 47°02'32", long 118°57'29", Hydrologic Unit 17020015.
Owner: J. Fox Estate.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 150 ft (45.7 m).
DATUM.--Land-surface datum is 1,255 ft (382.5 m) above mean sea level.
PERIOD OF RECORD.--October 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.32 ft (16.557 m) below land-surface datum, Oct. 4, 1973; lowest measured, 84.27 ft (25.686 m) below land-surface datum, Aug. 2, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	73.51	Dec. 8, 1976	84.00	Aug. 2, 1977	84.27		

B Well recently pumped.

ADAMS COUNTY--Continued

470451118582001 Local number, 16/31-6F1.
LOCATION.--Lat 47°04'51", long 118°58'20", Hydrologic Unit 17020015.
Owner: Chas. Forbes.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 15 in (375 mm), depth 254 ft (77.4 m), cased to 47 ft (14.3 m).
DATUM.--Land-surface datum is 1,166 ft (355.4 m) above mean sea level.
PERIOD OF RECORD.--April 1951, December 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.44 ft (4.097 m) below land-surface datum, Aug. 4, 1967; lowest measured, 164.0 ft (49.99 m) below land-surface datum, June 25, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	132.6	Mar. 15, 1977	90.65				

470815118222202 Local number, 19/35-14Q2.
LOCATION.--Lat 47°08'15", long 118°22'22", Hydrologic Unit 17020015, at Ritzville.
Owner: Ritzville No. 2.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well. diameter 12 in (300 mm), depth 508 ft (154.8 m), cased to 140 ft (42.7 m).
DATUM.--Land-surface datum is 1,805 ft (550.2 m) above mean sea level.
PERIOD OF RECORD.--October 1962 to October 1973, March 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 119.9 ft (36.55 m) below land-surface datum, June 25, 1967; lowest measured, 190.6 ft (58.09 m) below land-surface datum, Sept. 6, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	148.9	Mar. 23, 1977	159.6				

471217118441802 Local number, 20/32-25C2.
LOCATION.--Lat 47°12'17", long 118°44'18", Hydrologic Unit 17020015.
Owner: Weldon Walter.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 706 ft (215.2 m).
DATUM.--Land-surface datum is 1,791 ft (545.9 m) above mean sea level.
PERIOD OF RECORD.--October 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 251.48 ft (76.651 m) below land-surface datum, July 6, 1965; lowest measured, 315.05 ft (96.027 m) below land-surface datum, May 15, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	290.54	Mar. 14, 1977	291.90				

471347118410101. Local number, 20/33-16E1.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test water-table well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 70 to 94 ft (21.3 to 28.7 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) above mean sea level.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 80.34 ft (24.488 m) below land surface datum, June 20, 1975; lowest measured, 93.38 ft (28.462 m) below land-surface datum, Apr. 23, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	81.7	Mar. 21, 1977	81.9	June 16, 1977	82.08	Aug. 4, 1977	82.10
Dec. 9	81.6	Apr. 14	81.96	July 25	82.3	Aug. 25	82.2
Jan. 31, 1977	81.8	May 26	81.8				

471347118410102. Local number, 20/33-16E2.
LOCATION.--47°13'47", 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 158 to 183 ft (48.2 to 55.8 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) above mean sea level.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.35 ft (32.720 m) below land-surface datum, Mar. 23, 1972; lowest measured, 131.33 ft (40.029 m) below land-surface datum, Aug. 25, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	128.61	Mar. 21, 1977	121.8	June 16, 1977	129.98	Aug. 4, 1977	131.08
Dec. 9	124.56	Apr. 14	125.58	July 25	131.00	Aug. 25	131.33
Jan. 31, 1977	121.13	May 26	129.15				

ADAMS COUNTY--Continued

471347118410103. Local number 20/33-16E3.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 282 to 299 ft (86.0 to 91.1 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) above mean sea level.
REMARKS.--Water-level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 109.89 ft (33.494 m) below land-surface datum, Feb. 23, 1972; lowest measured, 141.98 ft (43.276 m) below land-surface datum, Aug. 25, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	135.46	Mar. 21, 1977	131.07	June 16, 1977	140.74	Aug. 2, 1977	141.68
Dec. 9	127.82	Apr. 14	135.44	July 25	141.66	Aug. 25	141.98
Jan. 31, 1977	123.41	May 26	139.83				

471347118410104. Local number, 20/33-16E4.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 352 to 401 ft (107.3 to 122.2 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) above mean sea level.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 106.46 ft (32.449 m) below land-surface datum, Mar. 23, 1972; lowest measured, 128.6 ft (39.20 m) below land-surface datum, Jan. 8, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	125.43	Mar. 21, 1977	119.90	June 16, 1977	125.79	Aug. 4, 1977	127.08
Dec. 9	122.35	Apr. 14	121.47	July 25	126.83	Aug. 25	127.76
Jan. 31, 1977	118.79	May 26	124.93				

471347118410105. Local number, 20/33-16E5.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 586 to 616 ft (178.6 to 187.8 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) above mean sea level.
REMARKS.--Water measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 112.35 ft (34.244 m) below land-surface datum, Feb. 23, 1972; lowest measured, 239.41 ft (72.972 m) below Land-surface datum, Aug. 25, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	151.67	Mar. 21, 1971	211.54	June 16, 1977	235.46	Aug. 4, 1977	238.53
Dec. 9	135.08	Apr. 14	227.00	July 25	238.19	Aug. 25	239.41
Jan. 31, 1977	129.00	May 26	230.00				

471347118410106. Local number, 20/33-16E6.
LOCATION.--Lat 47°13'47", long 118°41'01", Hydrologic Unit 17020015, near Odessa.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test artesian well, diameter 10 in (250 mm), total depth 750 ft (228.6 m), uncased depth interval from 676 to 701 ft (206.0 to 213.7 m).
DATUM.--Land-surface datum is 1,670 ft (509 m) above mean sea level.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 279.19 ft (85.097 m) below land-surface datum, Apr. 21, 1971; lowest measured, 389.77 ft (118.802 m) below land-surface datum, June 16, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	372.97	Mar. 21, 1977	343.86	June 16, 1977	389.77	Aug. 4, 1977	382.24
Dec. 9	354.20	Apr. 14	343.09	July 25	386.89	Aug. 25	386.60
Jan. 31, 1977	352.50	May 26	382.34				

471426118090401 Local number, 20/37-9J1.
LOCATION.--Lat 47°14'26", long 118°09'04", Hydrologic Unit 17020013, at Keystone.
Owner: Burlington Northern.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, depth 402 ft (122.5 m).
DATUM.--Land-surface datum is 1,935 ft (589.8 m) above mean sea level.
PERIOD OF RECORD.--November 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 105.25 ft (32.080 m) below land-surface datum, Apr. 10, 1966; lowest measured, 127.9 ft (38.98 m) below land-surface datum, Sept. 7, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	127.4	Mar. 23, 1977	118.4				

BENTON COUNTY

460237119383001. Local number, 7/25-36N1.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), total depth 860 ft (262.1 m), uncased depth interval from 105 to 185 ft (32.0 to 56.4 m).
DATUM.--Land-surface datum is 730 ft (222.5 m) above mean sea level.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 101.4 ft (30.91 m) below land-surface datum, June 25, 1976; lowest measured, 133.50 ft (40.691 m) below land-surface datum, Nov. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	119.1	Jan. 19, 1977	127.0	May 5, 1977	109.0	Sept. 16, 1977	131.8
Dec. 1	124.2	Mar. 24	129.8	July 5	130.7		

460237119383003. Local number, 7/25-36N3.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit, 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 860 ft (262.1 m), uncased depth interval from 720 to 755 ft (219.5 to 230.1 m).
DATUM.--Land-surface datum is 730 ft (222.5 m) above mean sea level.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 364.5 ft (111.10 m) below land-surface datum, May 5, 1977; lowest measured, 374.30 ft (114.087 m) below land-surface datum, Nov. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	370.6	Jan. 19, 1977	369.6	May 5, 1977	364.5	Sept. 16, 1977	369.5
Dec. 1	369.3	Mar. 24	369.4	July 5	369.0		

460237119383004. Local number, 7/25-36N4.
LOCATION.--Lat 46°02'37", long 119°38'30", Hydrologic Unit 17070101, near Paterson.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 m), total depth 860 ft (262.1 m), uncased depth interval from 770 to 860 ft (234.7 to 262.1 m).)
DATUM.--Land-surface datum is 730 ft (222.5 m) above mean sea level.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 368.2 ft (112.23 m) below land-surface datum, July 5, 1977; lowest measured, 373.40 ft (113.812 m) below land-surface datum, Dec. 14, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	369.6	Jan. 19, 1977	369.5	May 5, 1977	368.3	Sept. 16, 1977	368.4
Dec. 1	370.1	Mar. 24	368.6				

461226119220301. Local number, 8/28-6M1.
LOCATION.--Lat 46°12'26", long 119°22'03", Hydrologic Unit 17030003.
Owner: Dr. R. M. Debit.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm), depth 265 ft (80.8 m).
DATUM.--Land-surface datum 677 ft (206.3 m) above mean sea level.
PERIOD OF RECORD.--December 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 130.2 ft (39.68 m) below land-surface datum, Oct. 19, 1976; lowest measured, 147.7 ft (45.02 m) below land-surface datum, Apr. 9, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	130.2	Mar. 24, 1977	132.3				

CHELAN COUNTY

473110120282001. Local number, 23/19-4E2.
LOCATION.--Lat 47°31'10", long 120°28'20", Hydrologic Unit 17020011, at Cashmere.
Owner: City of Cashmere.
AQUIFER.--Alluvial sand and gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug public-supply water-table well, diameter 6 ft (1.8 m), depth 24 ft (7.3 m), lined with concrete.
DATUM.--Land-surface datum about 784 ft (239.0 m) above mean sea level.
PERIOD OF RECORD.--June 1945 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.04 ft (3.365 m) below land-surface datum, Feb. 1, 1972; lowest measured, 21.70 ft (6.614 m) below land-surface datum, Sept. 4, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 28, 1976	19.05	Feb. 10, 1977	17.15	June 3, 1977	18.17	July 29, 1977	21.10
Dec. 16	19.33	Apr. 1	17.13				

DOUGLAS COUNTY

472648119521001. Local number, 23/23-36G1.
LOCATION.--Lat 47°26'48", long 119°52'50", Hydrologic Unit 17020012.
Owner: Palisades Irrigation District.
AQUIFER.--Glacial gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug irrigation, water-table well, diameter 40 to 72 in (1,000 to 1,800 mm) depth 154 ft (46.9 m) lined with concrete to 152 ft (46.3 m).
DATUM.--Land-surface datum about 1,030 ft (314 m) above mean sea level.
PERIOD OF RECORD.--April 1943, April 1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.15 ft (40.279 m) below land-surface datum, Apr. 29, 1959; lowest measured, 146.79 ft (44.742 m) below land-surface datum, Oct. 12, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO OCTOBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 28, 1976	145.05	Mar. 14, 1977	141.84				

474855119303901. Local number, 27/26-25D1.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 38 to 53 ft (11.6 to 16.2 m).
DATUM.--Land-surface datum is 2,215 ft (675.1 m) above mean sea level.
REMARKS.--Water level measured in casing.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.36 ft (4.682 m) below land-surface datum, May 24, 1974; lowest measured, 21.35 ft (6.507 m) below land-surface datum, Feb. 8, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	20.8	Dec. 14, 1976	20.88	Feb. 8, 1977	21.35		

474855119303902. Local number, 27/26-25D2.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 70 to 152 ft (21.3 to 46.3 m), uncased.
DATUM.--Land-surface datum is 2,215 ft (675.1 m) above mean sea level.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 91.63 ft (27.929 m) below land-surface datum, May 24, 1974; lowest measured, 102.48 ft (31.236 m) below land surface datum, Jan. 20, 1975.

WATER LEVEL, BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	100.4	Dec. 14, 1976	100.62	Feb. 8, 1977	100.65		

474855119303904. Local number 27/26-25D4.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test,artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 490 to 610 ft (149.4 to 185.9 m), uncased, and perforated from 465 to 485 ft (141.7 to 147.8 m).
DATUM.--Land-surface datum is 2,215 ft (675.1 m) above mean sea level.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 277.40 ft (84.552 m) below land-surface datum, Apr. 20, 1974; lowest measured, 324.95 ft (99.045 m) below land-surface datum, July 23, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	323.5	Dec. 14, 1976	323.14	Feb. 8, 1977	323.08		

474855119303905. Local number, 27/26-25D5.
LOCATION.--Lat 47°48'55", long 119°30'39", Hydrologic Unit 17020012, near Mansfield.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), total depth 760 ft (231.6 m), completed depth interval from 630 to 687 ft (192.0 to 209.4 m) uncased, and screened from 750 to 760 ft (228.6 to 231.6 m).
DATUM.--Land-surface datum is 2,215 ft (675.1 m) above mean sea level.
REMARKS.--Water level measured in piezometer.
PERIOD OF RECORD.--April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 324.00 ft (98.755 m) below land-surface datum, May 10, and Dec. 14, 1976; lowest measured, 327.90 ft (99.944 m) below land-surface datum, Apr. 20, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	324.3	Dec. 14, 1976	324.00	Feb. 8, 1977	323.72		

FRANKLIN COUNTY

461705118570001. Local number, 9/31-4N1.
LOCATION.--Lat 46°17'05", long 118°57'00", Hydrologic Unit 17060110, at Pasco.
Owner: James W. Rogers
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 343 ft (104.5 m).
DATUM.--Land-surface datum about 658 ft (200.6 m) above mean sea level.
PERIOD OF RECORD.--April 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 266.60 ft (81.260 m) below land-surface datum, Mar. 19, 1975; lowest measured, 292.01 ft (89.005 m) below land-surface datum, Apr. 18, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 26, 1976	269.7	Apr. 5, 1977	268.5	May 26, 1977	269.2	Aug. 1, 1977	288.2
Jan. 28, 1977	271.1A						

462030119062001. Local number, 10/30-19C1.
LOCATION.--46°20'30", long 119°06'20", Hydrologic Unit 17020016.
Owner: Andrus and Roberts Produce Company.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled industrial water-table well, diameter 6 in (150 mm), depth 395 ft (120.4 m).
DATUM.--Land-surface datum about 500 ft (152 m) above mean sea level.
PERIOD OF RECORD.--April 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 97.85 ft (29.825 m) below land-surface datum, June 1, 1976; lowest measured, 134.94 ft (41.130 m) below land-surface datum, Nov. 7, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 22, 1976	99.8	Apr. 5, 1977	98.0	May 24, 1977	91.6	Sept. 28, 1977	92.3
Jan. 26, 1977	98.68						

462343119092802. Local number, 11/29-34J2.
LOCATION.--Lat 46°23'43", long 119°09'28", Hydrologic Unit 17020016.
Owner: Bob [illegible].
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm), depth 211 ft (64.3 m), cased to 211 ft (64.3 m).
DATUM--Land-surface datum about 692 ft (211 m) above mean sea level.
PERIOD OF RECORD.--June 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 170.5 ft (51.97 m) below land-surface datum, Sept. 29, 1977; lowest measured, 187.0 ft (57.00 m) below land-surface datum, June 1, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
May 24, 1977	175.6	July 28, 1977	179.4	Sept. 29, 1977	170.5		

462830119043301. Local number, 11/30-3B1.
LOCATION.--Lat 46°28'30", long 119°04'33", Hydrologic Unit 17020016.
Owner: Fred Holmes Community.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 8 in (200 mm), depth 110 ft (33.5 m), cased to 29 ft (8.8 m).
DATUM.--Land-surface datum about 741 ft (225.9 m) above mean sea level.
PERIOD OF RECORD.--January 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 31.2 ft (9.510 m) below land-surface datum, Sept. 29, 1972; lowest measured, 61.05 ft (18.608 m) below land-surface datum, Apr. 15, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 24, 1976	42.6A	Apr. 4, 1977	46.1	Aug. 1, 1977	43.3A	Sept. 28, 1977	42.6A
Jan. 27, 1977	44.7A	May 25	43.4A				

463231119001601. Local number, 12/30-12E1.
LOCATION.--Lat 46°32'31", long 119°00'16", Hydrologic Unit 17020016, at Eltopia.
Owner: Lea Hailey.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock water-table well, diameter 6 in (150 mm), depth 121 ft (36.9 m), cased to 120 ft (36.6 m).
DATUM.--Land-surface datum about 676 ft (206.0 m) above mean sea level.
PERIOD OF RECORD.--October 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 92.3 ft (28.13 m) below land-surface datum, Oct. 2, 1970; lowest measured, 108.69 ft (33.129 m) below land-surface datum, Apr. 16, 1959.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 24, 1976	102.3A	Apr. 4, 1977	100.3	Aug. 1, 1977	101.5A	Sept. 28, 1977	99.2
Jan. 27, 1977	104.0A	May 25	99.2				

A Well being pumped.

FRANKLIN COUNTY --Continued

463339119123601. Local number 12/29-5D1.
LOCATION.--Lat 46°33'39", long 119°12'36", Hydrologic Unit 17020016.
Owner: James Reynolds.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 181 ft (55.2 m), cased to 157 ft (47.9 m).
DATUM.--Land-surface datum about 610 ft (185.9 m) above mean sea level.
PERIOD OF RECORD.--January 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 113.00 ft (34.442 m) below land-surface datum, Dec. 15, 1959; lowest measured, 147.1 ft (44.84 m) below land-surface datum, Sept. 29, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 22, 1976	116.0	Apr. 4, 1977	115.0	July 28, 1977	128.2B	Sept. 29, 1977	116.1
Jan. 26, 1977	115.0	May 24	117.1				

463440118473001. Local number, 13/32-27N1.
LOCATION.--Lat 46°34'40", long 118°47'30", Hydrologic Unit 17020016, at Connell.
Owner: Dorsey Elgin.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 323 ft (98.5 m).
DATUM.--Land-surface datum about 1,155 ft (352.0 m) above mean sea level.
PERIOD OF RECORD.--October 1950-52, August 1956, June 1958, April 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 191.3 ft (58.31 m) below land-surface datum, July 30, 1975, June 2, 1976 and Sept. 28, 1977; lowest measured 281.47 ft (85.792 m) below land-surface datum, Oct. 4, 1950.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 22, 1976	191.6	Apr. 5, 1977	191.6	Aug. 1, 1977	191.6	Sept. 28, 1977	191.3
Jan. 27, 1977	191.7	May 25	192.7				

463520118544001. Local number, 13/31-27C01.
LOCATION.--Lat 46°35'20", long 118°54'40", Hydrologic Unit 17020016.
Owner: William Germain.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 270 ft (82.3 m).
DATUM.--Land-surface datum is 942 ft (287.1 m) above mean sea level.
REMARKS.--Well was destroyed this water year.
PERIOD OF RECORD.--March 1961 to January 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 121.3 ft (36.97 m) below land-surface datum, May 29, 1975; lowest measured, 243.11 ft (74.100 m) below land-surface datum, Mar. 22, 1962.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 22, 1976	225.0	Jan. 27, 1977	228.0				

463641119001001. Local number, 13/30-13N1.
LOCATION.--Lat 46°36'41", long 119°00'10", Hydrologic Unit 17020016, at Mesa.
Owner: P. H. Taylor.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic and stock water-table well, diameter 6 in (150 mm), depth 186 ft (56.7 m), cased to 11 ft (3.4 m).
DATUM.--Land-surface datum about 956 ft (291.4 m) above mean sea level.
PERIOD OF RECORD.--March 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 107.8 ft (32.86 m) below land-surface datum, Sept. 26, 1974; lowest measured, 141.72 ft (43.196 m) below land-surface datum, May 25, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 24, 1976	122.4	Apr. 4, 1977	137.7	July 28, 1977	129.7	Sept. 28, 1977	122.5
Jan. 27, 1977	131.9	May 25	132.0				

463900118470001. Local number, 14/32-33Q1.
LOCATION.--Lat 46°39'00", long 118°47'00", Hydrologic Unit 17020016, near Connell.
Owner: J. W. Stine.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 281 ft (85.6 m), cased to 51 ft (15.5 m).
DATUM.--Land-surface datum is 794 ft (242.0 m) above mean sea level.
PERIOD OF RECORD.--June 1952, October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 97.0 ft (29.57 m) below land-surface datum, June 11, 1952; lowest measured, 124.0 ft (37.80 m) below land-surface datum, Sept. 28, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 22, 1976	119.1A	Apr. 5, 1977	109.	Aug. 1, 1977	121.4A	Sept. 28, 1977	121.4A
Jan. 27, 1977	111.0	May 25	121. A				

A Well being pumped.
B Well recently pumped.

FRANKLIN COUNTY--Continued

463950118564001. Local number, 14/31-29R1.
LOCATION.--Lat 46°39'50", long 118°56'40", Hydrologic Unit 17020016.
Owner: Keith Herrman.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 315 ft (96.0 m), cased to 104 ft (31.7 m).
DATUM.--Land-surface datum about 1,118 ft (340.8 m) above mean sea level.
PERIOD OF RECORD.--April 1961 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 176.7 ft (53.86 m) below land-surface datum, Oct. 2, 1975; lowest measured, 232.80 ft (70.957 m) below land-surface datum, Apr. 26, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 22, 1976	179.3A	Apr. 4, 1977	183.6	Aug. 1, 1977	180.0	Sept. 28, 1977	178.1
Jan. 27, 1977	181.6	May 25	181.7				

464028119101601. Local number, 14/29-27E1.
LOCATION.--Lat 46°40'28", long 119°10'16", Hydrologic Unit 17020016.
Owner: U.S. Bureau of Reclamation.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, diameter 8 in (200 mm), depth 498 ft (151.8 m), cased to 435 ft (132.6 m).
DATUM.--Land-surface datum about 947 ft (288.6 m) above mean sea level.
PERIOD OF RECORD.--December 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.25 ft (24.155 m) below land-surface datum, Sept. 29, 1977; lowest measured, 235.79 ft (71.869 m) below land surface-datum, Mar. 24, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 22, 1976	80.9	Apr. 4, 1977	86.1	July 28, 1977	90.4	Sept. 29, 1977	79.25
Jan. 26, 1977	80.3	May 24	81.3				

GRANT COUNTY

464022119420801. Local number, 14/25-28E1.
LOCATION.--Lat 46°40'22", long 119°42'08", Hydrologic Unit 17020016.
Owner: U.S. Government, ERDA.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter [illegible] in (500 mm), depth 648 ft (197.5 m), cased to 648 ft (197.5 m), perforated 492 to 503 ft (150.0 to 153.3 m).
DATUM.--Land-surface datum about 860 ft (262 m) above mean sea level.
PERIOD OF RECORD.--May 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 455.3 ft (138.8 m) below land-surface datum, Oct. 1, 1976; lowest measured, dry, Apr. 4, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 1, 1976	455.3	Apr. 4, 1977	Dry				

464518119335001. Local number 15/26-28Q1.
LOCATION.--Lat 46°45'18", long 119°33'50", Hydrologic Unit 17020016.
Owner: U.S. Government, ERDA.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 to 8 in (400 to 200 mm), depth 892 ft (271.9 m), perforated 860 to 870 ft (262.1 to 265.2 m).
DATUM.--Land-surface datum about 770 ft (235 m) above mean sea level.
PERIOD OF RECORD.--October 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 299.75 ft (91.364 m) below land-surface datum, Nov. 29, 1972; lowest measured 323.4 ft (98.57 m) below land-surface datum, Nov. 13, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 24, 1976	303.0	Jan. 1, 1977	310.1	Apr. 4, 1977	304.6		

465539119332101. Local number, 17/26-34D1.
LOCATION.--Lat 46°55'39", long 119°33'21", Hydrologic Unit 17020015.
Owner: J. P. Needham.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 240 ft (73.2 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum is 1,085 ft (330.7 m) above mean sea level.
PERIOD OF RECORD.--September 1940, March 1956 to December 1958, March 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.06 ft (0.018 m) below land-surface datum Mar. 3, 1971; lowest measured, 177.66 ft (54.151 m) below land-surface datum, Sept. 22, 1956.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Dec. 7, 1976	4.70	Apr. 13, 1977	4.76	June 14, 1977	4.70	Aug. 2, 1977	4.50
Feb. 15, 1977	5.01						

A Well being pumped.

GRANT COUNTY--Continued

465626119010601. Local number, 17/30-26C1.

LOCATION.--46°56'26", long 119°01'06", Hydrologic Unit 17020015.

Owner: Albert Widmer.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 400 ft (121.9 m).

DATUM.--Land-surface datum is 1,402 ft (427.3 m) above mean sea level.

PERIOD OF RECORD.--August 1955, June 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 236.7 ft (72.15 m) below land-surface datum, Jan. 16, 1974; lowest measured, 292.03 ft (89.011 m) below land-surface datum, Oct. 3, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	249.29	Feb. 15, 1977	251.87	June 13, 1977	250.61	Aug. 1, 1977	251.33
Dec. 8	256.30	Apr. 12	250.13				

465851119161601. Local number, 17/28-11F1.

LOCATION.--Lat 46°58'51", long 119°16'16", Hydrologic Unit 17020015.

Owner: U.S. Government, U.S. Bureau of Reclamation.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled unused artesian test well, diameter 2 in (50 mm), depth 168 ft (51.2 m), cased to 8 ft (2.4 m).

DATUM.--Land-surface datum is 1,051.6 ft (320.53 m) above mean sea level.

PERIOD OF RECORD.--March 1950 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 90.88 ft (27.700 m) below land-surface datum, July 22, 1956; lowest measured, 141.01 ft (42.980 m) below land-surface datum, Jan. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	104.90	Mar. 15, 1977	103.93				

465903119070901. Local number, 17/29-12C1.

LOCATION.--Lat 46°59'03", long 119°07'09", Hydrologic Unit 17020015.

Owner: Rogers Hayes.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 315 ft (96.0 m).

DATUM.--Land-surface datum about 1,212 ft (369.4 m) above mean sea level.

PERIOD OF RECORD.--September 1949 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 33.35 ft (10.165 m) below land-surface datum, Oct. 17, 1967; lowest measured, 220.13 ft (67.096 m) below land-surface datum, Aug. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	39.28	Feb. 14, 1977	47.64	June 13, 1977	47.87	Aug. 1, 1977	42.70B
Dec. 7	42.17	Apr. 12	51.31				

470022119023801. Local number, 18/30-34M1.

LOCATION.--Lat 47°00'22", long 119°02'38", Hydrologic Unit 17020015.

Owner: H. Yamamoto.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 147 ft (44.8 m).

DATUM.--Land-surface datum is 1,174 ft (357.8 m) above mean sea level.

PERIOD OF RECORD.--February 1943 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 36.75 ft (11.201 m) below land-surface datum Oct. 7, 1974; lowest measured, 108.70 ft (33.132 m) below land-surface datum, Oct. 29, 1947.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	47.83	Feb. 15, 1977	47.19	June 13, 1977	46.14	Aug. 1, 1977	42.94D
Dec. 8	50.33A	Apr. 12	47.75				

470030119390301. Local number, 18/25-35K1.

LOCATION.--Lat 47°00'30", long 119°39'03", Hydrologic Unit 17020015.

Owner: Farm Management Service.

AQUIFER.--Basalt of Miocene to Pliocene Age.

WELL CHARACTERISTICS.--Drilled irrigation water-table well, depth 960 ft (292.6 m).

DATUM.--Land-surface datum is 1,140 ft (347.5 m) above mean sea level.

PERIOD OF RECORD.--May 1975 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 56.4 ft (17.19 m) below land-surface datum, Feb. 15, 1977; lowest measured, 282.65 ft (86.152 m) below land-surface datum, Sept. 8, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	248. A	Feb. 15, 1977	56.4	Apr. 13, 1977	211 A	June 14, 1977	162.39
Dec. 7	79.5						

A Well being pumped.
B Well recently pumped.
D Nearby well recently pumped.

GRANT COUNTY--Continued

470148119412601. Local number, 18/25-28B1.
LOCATION.--Lat 47°01'48", long 119°41'26", Hydrologic Unit 17020015.
Owner: Farm Management Service.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, depth 735 ft (224.0 m).
DATUM.--Land-surface datum is 1,151 ft (350.8 m) above mean sea level.
PERIOD OF RECORD.--June 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.13 ft (14.670 m) below land-surface datum, Feb. 11, 1976; lowest measured, 285.0 ft (86.87 m) below land-surface datum, June 18, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	111.6	Feb. 15, 1977	52.7	June 14, 1977	224.A	Aug. 2, 1977	194.A
Dec. 7	67.3	Apr. 13	222.A				

470233119115601. Local number, 18/29-20B1.
LOCATION.--R. Debeaument.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock-supply water-table well, diameter 6 in (150 mm), depth 219 ft (66.8 m).
DATUM.--Land-surface datum is 1,179 ft (359.4 m) above mean sea level.
PERIOD OF RECORD.--October 1949 to February 1950, August 1954 to October 1964, March 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.71 ft (1.436 m) below land-surface datum, Apr. 24, 1961; lowest measured, 150.21 ft (45.784 m) below land-surface datum, Aug. 26, 1954.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	46.74	Feb. 14, 1977	51.99	June 13, 1977	51.73	Aug. 1, 1977	46.94
Dec. 7	48.24	Apr. 12	55.23				

470339119433001. Local number, 18/25-8N1.
LOCATION.--Lat 47°03'39", long 119°43'30", Hydrologic Unit 17020015.
Owner: Metropolitan Life.
AQUIFER.--Sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled stock supply water-table well, diameter 6 in (150 mm), depth 323 ft (98.5 m).
DATUM.--Land-surface datum is 1,173 ft (357.5 m) above mean sea level.
PERIOD OF RECORD.--May 1942, September 1949 to November 1960, October 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.74 ft (7.236 m) below land-surface datum, Jan. 20, 1970; lowest measured, 97.42 ft (29.694 m) below land-surface datum, June 23, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	29.88	Feb. 15, 1977	27.69	June 14, 1977	38.90	Aug. 2, 1977	31.55
Dec. 7	28.07	Apr. 13	35.38				

470352119433201. Local number, 18/25-8M1.
LOCATION.--Lat 47°03'52", long 119°43'32", Hydrologic Unit 17020015.
Owner: Metropolitan Life.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 36 in (900 mm), depth 112 ft (34.1 m), lined with concrete to 112 ft (34.1 m).
DATUM.--Land-surface datum about 1,179 ft (359.4 m) above mean sea level.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.22 ft (8.906 m) below land-surface datum, Feb. 19, 1969; lowest measured, 98.76 ft (30.102 m) below land-surface datum, Apr. 27, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	31.98	Feb. 15, 1977	30.84	June 14, 1977	39.41C	Aug. 2, 197	32.86
Dec. 7	30.84	Apr. 13	37.25C				

470417119043401. Local number, 18/30-8C1.
LOCATION.--Lat 47°04'17", long 119°04'34", Hydrologic Unit 17020015.
Owner: Wayner Goff.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 228 ft (69.5 m).
DATUM.--Land-surface datum is 1,225 ft (373.4 m) above mean sea level.
PERIOD OF RECORD.--May 1951 to October 1951, October 1954 to April 1956, February 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.25 ft (15.926 m) below land-surface datum, Sept. 16, 1969; lowest measured, 181.26 ft (55.248 m) below land-surface datum, Aug. 31, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	57.74	Feb. 15, 1977	69.68	June 14, 1977	67.33	Aug. 2, 1977	60.89
Dec. 8	61.90	Apr. 12	73.44				

A Well being pumped.
C Nearby well being pumped.

GRANT COUNTY--Continued

470445119160301. Local number, 18/28-2L1.
LOCATION.--Lat 47°04'45", long 119°16'03", Hydrologic Unit 17020015.
Owner: Dune Lake Company.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 184 ft (56.1 m).
DATUM.--Land-surface datum about 1,128 ft (343.8 m) above mean sea level.
PERIOD OF RECORD.--October 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.45 ft (0.137 m) below land-surface datum, Sept. 4, 1970; lowest measured, 74.25 ft (22.631 m) below land-surface datum, May 14, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	4.19	Mar. 15, 1977	5.68				

470519119550801. Local number, 19/23-34R1.
LOCATION.--Lat 47°05'19", long 119°55'08", Hydrologic Unit 17020015.
Owner: N. Defreese.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 5 in (125 mm), depth 243 ft (74.1 m).
DATUM.--Land-surface datum is 1,302 ft (396.8 m) above mean sea level.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.79 ft (8.470 m) below land-surface datum, Sept. 8, 1976; lowest measured, 229.19 ft (69.857 m) below land-surface datum, Oct. 24, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	28.93	Feb. 15, 1977	47.80	Apr. 13, 1977	51.57B	Aug. 2, 1977	28.67B

470608119331502. Local number 19/26-34D1.
LOCATION.--Lat 47°06'08", long 119°33'15", Hydrologic Unit 17020015.
Owner: Washington State Highways.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 96 ft (29.3 m), cased to 65 ft (19.8 m).
DATUM.--Land-surface datum about 1,168 ft (356.0 m) above mean sea level.
PERIOD OF RECORD.--March 1939-July 1963, November 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.77 ft (8.159 m) below land-surface datum, Feb. 15, 1977; lowest measured, 99.59 ft (30.355 m) below land-surface datum, July 17, 1958.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	27.47	Feb. 15, 1977	26.77	June 14, 1977	27.35	Aug. 2, 1977	27.43
Dec. 7	26.91	Apr. 13	27.10				

470621119144401. Local number, 19/28-25L1.
LOCATION.--Lat 47°06'21", long 119°14'44", Hydrologic Unit 17020015, at Moses Lake.
Owner: Paul Landis.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARCTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 492 ft (150.0 m).
DATUM.--Land-surface datum about 1,192 ft (363.3 m) above mean sea level.
PERIOD OF RECORD.--October 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.3 ft (12.28 m) below land-surface datum, Sept. 5, 1974; lowest measured, 180.30 ft (54.955 m) below land-surface datum, Sept. 19, 1950.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	42.98	Feb. 14, 1977	45.31	June 13, 1977	45.64	Aug. 1, 1977	43.69
Dec. 7	43.70	Apr. 12	46.18				

470626119101801. Local number, 19/29-28J1.
LOCATION.--Lat 47°06'26", long 119°10'18", Hydrologic Unit 17020015.
Owner: J. E. Anderson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, depth 800 ft (243.8 m).
DATUM.--Land-surface datum is 1,245 ft (379.5 m) above mean sea level.
PERIOD OF RECORD.--June 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.06 ft (10.686 m) below land-surface datum, Mar. 11, 1976; lowest measured, 56.30 ft (17.160 m) below land-surface datum, June 19, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	42.9	Mar. 15, 1977	38.40				

B Well recently pumped.

GRANT COUNTY--Continued

470627119394701. Local number, 19/25-26N1.
LOCATION.--Lat 47°06'27", long 119°39'47", Hydrologic Unit 17020015.
Owner: Rudy Stetner.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 110 ft (33.5 m).
DATUM.--Land-surface datum is 1,185 ft (361.2 m) above mean sea level.
PERIOD OF RECORD.--September 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.09 ft (14.963 m) below land-surface datum, Mar. 5, 1971; lowest measured, 106.63 ft (32.501 m) below land-surface datum, Mar. 5, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	63.53	Feb. 15, 1977	58.10	June 14, 1977	59.16	Aug. 2, 1977	63.53
Dec. 7	60.82	Apr. 13	56.14				

470631119420501. Local number, 19/25-28M1.
LOCATION.--Lat 47°06'31", long 119°42'05", Hydrologic Unit 17020015.
Owner: Edwin A. Wyatt.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 124 ft (37.8 m).
DATUM.--Land-surface datum about 1,194 ft (363.9 m) above mean sea level.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.00 ft (11.278 m) below land-surface datum, Apr. 19, 1972; lowest measured, 114.47 ft (34.890 m) below land-surface datum, Apr. 7, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	43.97	Feb. 15, 1977	40.49	June 14, 1977	44.39	Aug. 2, 1977	46.97
Dec. 7	42.2	Apr. 13	39.95				

470652119230301. Local number, 19/27-26A1.
LOCATION.--Lat 47°06'52", long 119°23'03", Hydrologic Unit 17020015.
Owner: C. M. Grant.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug domestic and irrigation water-table well, diameter 48 to 6 in (1,200 to 150 mm), depth 52 ft (15.8 m).
DATUM.--Land-surface datum about 1,073 ft (327.1 m) above mean sea level.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.68 ft (7.522 m) below land-surface datum, Mar. 14, 1974; lowest measured, 41.86 ft (12.759 m) below land-surface datum, July 22, 1955.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	31.98	Mar. 15, 1977	28.48B				

470658119261401. Local number, 19/27-28B1.
LOCATION.--Lat 47°06'58", long 119°26'14", Hydrologic Unit 17020015.
Owner: John Quick.
AQUIFER.--Gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 90 ft (27.4 m).
DATUM.--Land-surface datum is 1,101 ft (335.6 m) above mean sea level.
PERIOD OF RECORD.--December 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 59.30 ft (18.075 m) below land-surface datum, Mar. 10, 1976; lowest measured, 62.70 ft (19.111 m) below land-surface datum, Dec. 16, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	62.29	Mar. 15, 1977	61.03				

470729119101501. Local number, 19/29-22E1.
LOCATION.--Lat 47°07'29", long 119°10'15", Hydrologic Unit 17020015.
Owner: Carnation Company.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 14 in (350 mm), depth 560 ft (170.7 m).
DATUM.--Land-surface datum is 1,293 ft (394.1 m) above mean sea level.
PERIOD OF RECORD.--June 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 55.37 ft (16.877 m) below land surface datum, Sept. 9, 1975; lowest measured, 103.00 ft (31.394 m) below land-surface datum, Sept. 9, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	68.20	Mar. 15, 1977	87.30				

B Well recently pumped.

GRANT COUNTY--Continued

470753119192402. Local number, 19/28-20A1.
LOCATION.--47°07'53", long 119°19'24", Hydrologic Unit 17020015.
Owner: M. C. Wilson.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 36 in (900 mm), depth 39 ft (11.9 m), lined with concrete to 38 ft (11.6 m).
DATUM.--Land-surface datum about 1,080 ft (329 m) above mean sea level.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.21 ft (9.818 m) below land-surface datum, Oct. 3, 1973; lowest measured, 46.95 ft (14.310 m) below land-surface datum, Mar. 1, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	37.19	Feb. 16, 1977	37.99	June 14, 1977	34.94	Aug. 3, 1977	34.75
Dec. 8	36.95	Apr. 12	35.61				

470759119344501. Local number, 19/26-20A1.
LOCATION.--Lat 47°07'59", long 119°34'45", Hydrologic Unit 17020015.
Owner: Joe Tainaka.
AQUIFER.--Glacial sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 150 ft (45.7 m), cased to 100 ft (30.5 m).
DATUM.--Land-surface datum about 1,224 ft (373.1 m) above mean sea level.
PERIOD OF RECORD.--March 1939-August 1940, April 1942, September 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.33 ft (18.998 m) below land-surface datum, Apr. 19, 1972; lowest measured, 151.45 ft (46.162 m) below land-surface datum, Apr. 11, 1952.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	63.89	Feb. 15, 1977	64.19	June 14, 1977	63.97	Aug. 2, 1977	67.23
Dec. 7	63.03	Apr. 13	63.72				

470805119263801. Local number, 19/27-16N1.
LOCATION.--Lat 47°08'05", long 119°26'38", Hydrologic Unit 17020015.
Owner: Wes Avara.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 84 in (2,100 mm), depth 74 ft (22.6 m), lined with concrete to 65 ft (19.8 m).
DATUM.--Land-surface datum about 1,094 ft (333.5 m) above mean sea level.
PERIOD OF RECORD.--December 1942 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 47.37 ft (14.438 m) below land-surface datum, Mar. 14, 1974; lowest measured, 81.77 ft (24.923 m) below land-surface datum, Oct. 28, 1947.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	49.17	Mar. 15, 1977	49.94				

470811119074301. Local number, 19/29-14J1.
LOCATION.--Lat 47°08'11", long 119°07'43", Hydrologic Unit 17020015.
Owner: Jim Abram.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 12 in (300 mm), depth 368 ft (112.2 m).
DATUM.--Land-surface datum about 1,357 ft (413.6 m) above mean sea level.
PERIOD OF RECORD.--December 1950 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 132.21 ft (40.298 m) below land-surface datum, Dec. 30, 1964; lowest measured, 234.03 ft (71.332 m) below land-surface datum, Oct. 27, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	150.3	Feb. 15, 1977	142.2	June 14, 1977	180.55	Aug. 2, 1977	188.58B
Dec. 8	143.4	Apr. 14	178.9B				

470913119192401. Local number, 19/28-8H2.
LOCATION.--Lat 47°09'13", long 119°19'24", Hydrologic Unit 17020015.
Owner: Mr. Baker.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation and domestic water-table well, diameter 10 in (250 mm), depth 48 ft (14.6 m), cased to 48 ft (14.6 m).
DATUM.--Land-surface datum about 1,090 ft (332.2 m) above mean sea level.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 39.43 ft (12.018 m) below land-surface datum, Aug. 3, 1977; lowest measured, 48.35 ft (14.737 m) below land-surface datum, Dec. 13, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	45.3A	Feb. 16, 1977	45.03	June 16, 1977	43.5A	Aug. 3, 1977	39.43
Dec. 8	44.70	Apr. 12	43.19				

A Well being pumped.
B Well recently pumped.

GRANT COUNTY--Continued

470935119174201. Local number, 19/28-10D1.
LOCATION.--Lat 47°09'35", long 119°17'42", Hydrologic Unit 17020015.
Owner: Harold Mathenia.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug and drilled domestic water-table well, diameter 40 to 6 in (1,000 to 150 mm), depth 102 ft (31.1 m).
DATUM.--Land-surface datum about 1,114 ft (339.5 m) above mean sea level.
PERIOD OF RECORD.--November 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.23 ft (14.701 m) below land-surface datum, Sept. 16, 1969; lowest measured, 62.08 ft (18.922 m) below land-surface datum, Aug. 30, 1951.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	49.09	Mar. 15, 1977	52.60				

470952118592701. Local number, 19/30-1L1.
LOCATION.--Lat 47°09'52", long 118°59'27", Hydrologic Unit 17020015, near Ruff.
Owner: A. L. Ramm.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-level well, diameter 12 in (300 mm), depth 523 ft (159.4 m), cased to 37 ft (11.3 m).
DATUM.--Land-surface datum is 1,420 ft (432.8 m) above mean sea level.
PERIOD OF RECORD.--January 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 257.0 ft (78.33 m) below land-surface datum, Apr. 2, 1976; lowest measured, 405. ft (123.4 m) below land-surface datum, June 14, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	382.	Feb. 15, 1977	366.	June 14, 1977	405.A	Aug. 2, 1977	396.
Dec. 8	377.	Apr. 12	391.A				

471020119210701. Local number, 19/28-6C1.
LOCATION.--Lat 47°10'20", long 119°21'07", Hydrologic Unit 17020015.
Owner: Troy Farms Inc.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 48 in (1,200 mm), depth 37 ft (11.3 m), lined with concrete to 37 ft (11.3 m).
DATUM.--Land-surface datum about 1,078 ft (328.6 m) above mean sea level.
PERIOD OF RECORD.--March 1939-April 1942, August 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 29.10 ft (8.870 m) below land-surface datum, June 24, 1971; lowest measured, 42.42 ft (12.930 m) below land-surface datum, June 19, 1961.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 20, 1976	33.4	Feb. 15, 1977	35.13	June 14, 1977	34.30	Aug. 2, 1977	34.48
Dec. 7	34.85	Apr. 12	32.85				

471955119324701. Local number, 21/26-10L2.
LOCATION.--Lat 47°19'55", long 119°32'47", Hydrologic Unit 17020015.
Owner: D. L. Nelson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 122 ft (37.2 m), cased to 100 ft (30.5 m).
DATUM.--Land-surface datum about 1,260 ft (384 m) above mean sea level.
PERIOD OF RECORD.--September 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.87 ft (6.056 m) below land-surface datum, Aug. 28, 1975; lowest measured, 68.27 ft (20.809 m) below land-surface datum, Dec. 7, 1959.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	21.02	Feb. 16, 1977	24.52	June 15, 1977	26.32	Aug. 3, 1977	21.58
Dec. 9	22.16	Apr. 13	27.10				

472009119300101. Local number, 21/26-12F1.
LOCATION.--Lat 47°20'09", long 119°30'01", Hydrologic Unit 17020015, near Ephrata.
Owner: Grant County.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 183 ft (55.8 m).
DATUM.--Land-surface datum is 1,259 ft (383.7 m) above mean sea level.
PERIOD OF RECORD.--December 1949 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 83.44 ft (25.433 m) below land-surface datum, Aug. 3, 1977; lowest measured, 117.77 ft (35.896 m) below land-surface datum, Mar. 13, 1950.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	83.76	Feb. 16, 1977	92.73	June 15, 1977	87.89	Aug. 3, 1977	83.44
Dec. 9	83.74	Apr. 13	83.50				

A Well being pumped.

GRANT COUNTY--Continued

473505119085701. Local number, 24/29-10R1.
LOCATION.--Lat 47°35'05", long 119°08'57", Hydrologic Unit 17020014.
Owner: Harold Isaak.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 7 in (175 mm), depth 120 ft (36.6 m).
DATUM.--Land-surface datum is 1,771 ft (539.8 m) above mean sea level.
PERIOD OF RECORD.--October 1966 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 79.22 ft (24.146 m) below land-surface datum, Mar. 12, 1975; lowest measured, 93.45 ft (28.484 m) below land-surface datum, Sept. 8, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	81.33	Jan. 31, 1977	84.25	May 27	81.76	Aug. 23, 1977	82.00
Dec. 15	8[illegible].50	Mar. 22	81.47	July 25	82.16		

473644119161101. Local number, 24/28-2C1.
LOCATION.--Lat 47°36'44", long 119°16'11", Hydrologic Unit 17020014, near Coulee City.
Owner: Vern Adams.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 400 ft (121.9 m).
DATUM.--Land-surface datum is 1,661 ft (506.3 m) above mean sea level.
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.7 ft (16.06 m) below land-surface datum, Feb. 29, 1968; lowest measured, 126.1 ft (38.44 m) below land-surface datum, Sept. 8, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	94.7B	Jan. 31, 1977	78.2	May 27, 1977	112.1	Aug. 23, 1977	123.5
Dec. 15	100.5B	Mar. 22	115.9	July 25	123.2A		

KITTITAS COUNTY

470052120290001. Local number, 18/19-32B1.
LOCATION.--Lat 47°00'52", long 120°29'00", Hydrologic Unit 17030001, near Ellensburg.
Owner: Department of Game.
AQUIFER.--Sand of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 10 in (250 mm), depth 267 ft (81.4 m), cased to 100 ft (30.5 m).
DATUM.--Land-surface datum is 1,723 ft (525.2 m)above mean sea level.
PERIOD OF RECORD.--June 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.0 ft (6.10 m) below land-surface datum, Sept. 22, 1975; lowest measured, 65.59 ft (19.992 m) below land-surface datum, June 1, 1970.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Jan. 24, 1977	28.3	Sept. 6, 1977	37.8				

KLICKITAT COUNTY

454325120554301. Local number, 3/15-28A1.
LOCATION.--Lat 45°43'25", long 120°55'43", Hydrologic Unit 17070106.
Owner: Frank Garner.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 85 ft (25.9 m).
DATUM.--Land-surface datum about 1,695 ft (516.6 m) above mean sea level.
PERIOD OF RECORD.--August 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.86 ft (2.091 m) below land-surface datum, Apr. 8, 1965; lowest measured, 17.18 ft (5.236 m) below land-surface datum, Oct. 15, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 15, 1977	13.65						

454715120434901. Local number, 4/17-31L1.
LOCATION.--Lat 45°47'15", long 120°43'49", Hydrologic Unit 17070106.
Owner: T. V. Wilkins.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (400 mm), depth 139 ft (42.4 m).
DATUM.--Land-surface datum about 1,883 ft (573.9 m) above mean sea level.
PERIOD OF RECORD.--August 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.99 ft (0.302 m) below land-surface datum, Feb. 16, 1966; lowest measured, 8.01 ft (2.441 m) below land-surface datum, Sept. 9, 1966.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 15, 1977	5.14						

A Well being pumped B Well recently pumped.

KLICKITAT COUNTY--Continued

455008120561301. Local number, 4/15-16F1.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Land-surface datum is 1,590 ft (485 m) above mean sea level.
REMARKS.--Monitored depth interval from 40 to 210 ft (12.2 to 64.0 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.1 ft (3.38 m) below land-surface datum, Apr. 12, 1976; lowest measured, 19.00 ft (5.791 m) below land-surface datum, Mar. 16, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 15, 1977	18.3						

455008120561302. Local number, 4/15-16F2.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 170701016, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Land-surface datum is 1,590 ft (485 m) above mean sea level.
REMARKS.--Monitored depth interval from 215 to 330 ft (65.5 to 100.6 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 11.0 ft (3.35 m) below land-surface datum, Apr. 12, 1976; lowest measured, 18.50 ft (5.639 m) below land-surface datum, Mar. 16, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 15, 1977	18.3						

455008120561303. Local number, 4/15-16F3.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Land-surface datum is 1,590 ft (485 m) above mean sea level.
REMARKS.--Monitored depth interval from 335 to 440 ft (102.1 to 134.1 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.6 ft (3.54 m) below land-surface datum, Apr. 12, 1976, lowest measured, 19.00 ft (5.791 m) below land-surface datum, Mar. 16, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 15, 1977	18.8						

455008120561304. Local number, 4/15-16F4.
LOCATION.--Lat 45°50'08", long 120°56'13", Hydrologic Unit 17070106, near Blockhouse.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 in (300 mm), depth 595 ft (181.4 m), 12 in (300 mm) diameter casing to 331 ft (100.9 m), perforated 40 to 331 ft (12.2 to 100.9 m).
DATUM.--Land-surface datum is 1,590 ft (485 m) above mean sea level.
REMARKS.--Monitored depth interval from 500 to 580 ft (152.4 to 176.8 m), water level measured in piezometer.
PERIOD OF RECORD.--March 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 200.4 ft (61.08 m) below land-surface datum, Mar. 15, 1977; lowest measured, 223.60 ft (68.153 m) below land-surface datum, Apr. 30, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 15, 1977	200.4						

455948120175201. Local number, 6/20-22D1.
LOCATION.--Lat 45°59'48", long 120°17'52", Hydrologic Unit 17070101, near Bickleton.
Owner: L. Whitmore.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 8 in (200 mm), depth 44 ft (13.4 m).
DATUM.--Land-surface datum is 3,005 ft (915.9 m) above mean sea level.
PERIOD OF RECORD.--May 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 3.30 ft (1.006 m) below land-surface datum, Apr. 9, 1971; lowest measured, 31.27 ft (9.531 m) below land-surface datum, Aug. 25, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	29.23	Mar. 15, 1977	30.02				

LINCOLN COUNTY

471622118572501. Local number, 21/31-32D1.
LOCATION.--Lat 47°16'22", long 118°57'25", Hydrologic Unit 17020015.
Owner: Fred Kissler.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm) from 0 to 385 ft (0 to 117.3 m), 8 in (200 mm) diameter from 385 to 708 ft (117.3 to 215.8 m), total depth 708 ft (215.8 m).
DATUM.--Land-surface datum is 1,669 ft (508.7 m) above mean sea level.
PERIOD OF RECORD.--April 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 255.0 ft (77.7 m) below land-surface datum, Feb. 28, 1965; lowest measured, 465.83 ft (141.985 m) below land-surface datum, Oct. 24, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	440.A	Mar. 14, 1977	409.8C				

471915118362401. Local number, 21/33-12P1.
LOCATION.--Lat 47°19'15", long 118°36'24", Hydrologic Unit 17020013.
Owner: King Brothers.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 15 in (375 mm), depth 403 ft (122.8 m), cased to 48 ft (14.6 m).
DATUM.--Land-surface datum is 1,602 ft (488.3 m) above mean sea level.
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.78 ft (3.895 m) below land-surface datum, Feb. 17, 1967; lowest measured, 128.9 ft (39.29 m) below land-surface datum, May 17, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	36.32	Mar. 14, 1977	25.38				

471937118544402. Local number, 21/31-10M2.
LOCATION.--47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).
DATUM.--Land-surface datum is 1,610 ft (491 m) above mean sea level.
REMARKS.--Monitored depth interval from 98 to 735 ft (29.9 to 224.0 m), water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 230.25 ft (70.180 m) below land-surface datum,Jan. 8, 1973; lowest measured, 282.02 ft (85.960 m) below land-surface datum, June 16, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	273.81	Feb. 17, 1977	268.69	June 16, 1977	282.02	Aug. 4, 1977	281.55
Dec. 9	271.82	Apr. 14	275.49				

471937118544403. Local number, 21/31-10M3.
LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).
DATUM.--Land-surface datum is 1,610 ft (491 m) above mean sea level.
REMARKS.--Monitored depth interval from 742 to 1,480 ft (226.2 to 451.1 m), water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 231.32 ft (70.506 m) below land-surface datum, Jan. 8, 1973; lowest measured, 315.44 ft (96.146 m) below land-surface datum, June 16, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	296.95	Feb. 17, 1977	294.09	June 16, 1977	315.44	Aug. 4, 1977	312.73
Dec. 9	297.28	Apr. 14	303.09				

471937118544404. Local number, 21/31-10M4.
LOCATION.--Lat 47°19'37", long 118°54'44", Hydrologic Unit 17020015, near Odessa.
Owner: Mrs. Robert Schell.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS. Drilled oil-test well, diameter 10 in (250 mm), depth 4,682 ft (1,427.1 m), cased to 98 ft (29.9 m).
DATUM.--Land-surface datum is 1,610 ft (491 m) above mean sea level.
REMARKS.--Monitored depth interval from 1,488 to 2,300 ft (453.5 to 701.0 m), water level measured in piezometer.
PERIOD OF RECORD.--November 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 224.56 ft (68.446 m) below land-surface datum,May 24, 1976; lowest measured, 235.16 ft (71.677 m).

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	229.69	Feb. 17, 1977	229.79	June 16, 1977	233.55	Aug. 4, 1977	235.16
Dec. 9	230.18	Apr. 14	230.92				

A Well being pumped. C Nearby well being pumped.

LINCOLN COUNTY--Continued

472513118053801. Local number, 22/37-12C1.
LOCATION.--Lat 47°25'13", long 118°05'38", Hydrologic Unit 17020013.
Owner: Wesley Bly.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (200 mm), depth 380 ft (115.8 m), cased to 40 ft (12.2 m).
DATUM.--Land-surface datum is 2,229 ft (679.4 m) above mean sea level.
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 62.11 ft (18.931 m) below land-surface datum, Jan. 26, 1971; lowest measured, 129.48 ft (39.466 m) below land-surface datum, Mar. 21, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	126.87	Mar. 21, 1977	129.48				

472802118165401. Local number, 23/36-21P1.
LOCATION.--Lat 47°28'02", long 118°16'54", Hydrologic Unit 17020013, near Harrington.
Owner: Harry Moeller.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 242 ft (73.8 m), cased to 17 ft (5.2 m).
DATUM.--Land-surface datum is 2,138 ft (651.7 m) above mean sea level.
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 51.5 ft (15.70 m) below land-surface datum, Jan. 28, 1970; lowest measured, 103.3 ft (31.49 m) below land-surface datum, May 14, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	65.4	Mar. 21, 1977	98.8A				

472839118481901. Local number, 23/32-20A1.
LOCATION.--Lat 47°28'39", long 118°48'19", Hydrologic Unit 17020013.
Owner: L. J. Bonney.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 16 in (400 mm), depth 710 ft (216.4 m), cased to 644 ft (196.3 m).
DATUM.--Land-surface datum is 1,855 ft (565.4 m) about mean sea level.
PERIOD OF RECORD.--October 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 173.55 ft (52.898 m) below land-surface datum, Mar. 14, 1967; lowest measured, 351.8 ft (107.23 m) below land-surface datum, July 21, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	320.00	Mar. 27, 1977	291.				

473453118560301. Local number, 24/31-16E1.
LOCATION.--Lat 47°34'53", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water table well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Land surface datum is 1,845 ft (562.4 m) above mean sea level.
REMARKS.--Monitored depth interval from 60 to 316 ft (18.3 to 96.3 m), water level measured in 10 in (250 mm) diameter casing.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 175.20 ft (53.401 m) below land-surface datum, Sept. 10, 1975; lowest measured, 185.70 ft (56.601 m) below land-surface datum, Feb. 20, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	175.6	Jan. 31, 1977	176.0	May 27, 1977	180.6	Aug. 23, 1977	180.8
Dec. 15	175.8	Mar. 22	175.4	July 25	180.0		

473453118560302. Local number, 24/31-16E2.
LOCATION.--Lat 47°34'53", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum is 1,845 ft (562.4 m) above mean sea level.
REMARKS.--Monitored depth interval from 424 to 456 ft (129.2 to 139.0 m), water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 346.65 ft (105.659 m) below land-surface datum, Jan. 31, 1977; lowest measured, 387.98 ft (118.256 m) below land-surface datum, Aug. 23, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	369.16	Jan. 31, 1977	346.65	May 27, 1977	383.43	Aug. 23, 1977	387.98
Dec. 15	357.19	Mar. 22	379.50	July 25	386.73		

A Well being pumped.

LINCOLN COUNTY--Continued

473433118560303. Local number, 24/31-16E3.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum is 1,845 ft (562.4 m) above mean sea level.
REMARKS.--Monitored depth interval from 494 to 556 ft (150.6 to 169.5 m), water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 345.53 ft (105.318 m) below land-surface datum, Jan. 31, 1977; lowest measured, 387.95 ft (118.247 m) below land-surface datum, Aug. 23, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	369.28	Jan. 31, 1977	345.53	May 27, 1977	383.18	Aug. 23, 1977	387.95
Dec. 15	357.25	Mar. 22	379.49	July 25	386.69		

473433118560304. Local number, 24/31-16E4.
LOCATION.--Lat 47°34'33", long 118°56'03", Hydrologic Unit 17020013, near Almira.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum is 1,845 ft (562.4 m) above mean sea level.
REMARKS.--Monitored depth interval 650 to 698 ft (198.1 to 212.8 m), water level measured in piezometer.
PERIOD OF RECORD.--May 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 346.50 ft (105.613 m) below land-surface datum, Jan. 31, 1977; lowest measured, 387.74 ft (118.183 m) below land-surface datum, Aug. 23, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	368.37	Jan. 31, 1977	346.50	May 27, 1977	383.40	Aug. 23, 1977	387.74
Dec. 15	365.82	Mar. 22	379.23	July 25	385.62		

473442118162201. Local number, 24/36-16A1.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) above mean sea level.
REMARKS.--Monitored depth interval from 75 to 116 ft (22.9 to 35.4 m), water level measured in 10 in (250 mm) casing.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.52 ft (8.693 m) below land-surface datum, May 1, 1974; lowest measured, 46.10 ft (14.051 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	36.0	Feb. 1, 1977	37.6	May 26, 1977	39.1	Aug. 20, 1977	42.4
Dec. 16	36.9	Mar. 22	37.6	July 29	42.6		

473442118162202. Local number, 24/36-16A2.
LOCATION.--47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) above mean sea level.
REMARKS.--Monitored depth interval from 123 to 160 ft (37.5 to 48.8 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.38 ft (8.650 m) below land-surface datum, May 1, 1974; lowest measured, 46.22 ft (14.088 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	36.00	Feb. 1, 1977	36.76	May 26, 1977	39.14	Aug. 22, 1977	42.36
Dec. 16	36.65	Mar. 22	37.48	July 29	41.64		

473442118162203. Local number, 1/36-16A3.
LOCATION.--47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) above mean sea level.
REMARKS.--Monitored depth interval from 208 to 224 ft (63.4 to 68.3 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.24 ft (8.608 m) below land-surface datum, May 1, 1974; lowest measured, 46.25 ft (14.097 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	36.01	Feb. 1, 1977	37.50	May 26, 1977	39.20	Aug. 22, 1977	42.34
Dec. 16	36.68	Mar. 22	37.48	July 29	41.79		

LINCOLN COUNTY--Continued

473442118162204. Local number, 24/36-16A4.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) above mean sea level.
REMARKS.--Monitored depth interval from 242 to 261 ft (73.8 to 79.6 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.47 ft (8.373 m) below land-surface datum, May 1, 1974; lowest measured, 46.45 ft (14.158 m) below land-surface datum, Nov. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	36.11	Feb. 1, 1977	37.59	May 26, 1977	39.31	Aug. 22, 1977	42.60
Dec. 16	36.79	Mar. 22	37.61	July 29	41.89		

473442118162205. Local number, 24/36-16A5.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) above mean sea level.
REMARKS.--Monitored depth interval from 315 to 365 ft (96.0 to 111.3 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.90 ft (8.504 m) below land-surface datum, May 1, 1974; lowest measured, 50.53 ft (15.402 m) below land-surface datum, Sept. 6, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	39.19	Feb. 1, 1977	39.61	May 26, 1977	44.10	Aug. 22, 1977	48.50
Dec. 16	39.09	Mar. 22	39.68	July 29	47.55		

473442118162206. Local number, 24/36-16A6.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) above mean sea level.
REMARKS.--Monitored depth interval from 451 to 491 ft (137.5 to 149.7 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.93 ft (10.647 m) below land-surface datum, Mar. 2, 1976; lowest measured, 66.34 ft (20.220 m) below land-surface datum, Sept. 30, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	41.37	Feb. 1, 1977	40.40	May 26, 1977	42.26	Aug. 22, 1977	47.33
Dec. 16	40.87	Mar. 22	40.38	July 29	45.40		

473442118162207. Local number, 24/36-16A7.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) above mean sea level.
REMARKS.--Monitored depth interval from 590 to 635 ft (179.8 to 193.5 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 162.47 ft (49.521 m) below land-surface datum, Mar. 22, 1972; lowest measured, 211.67 ft (64.517 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	196.59	Feb. 1, 1977	186.02	May 26, 1977	197.64	Aug. 22, 1977	211.67
Dec. 16	190.43	Mar. 22	180.95	July 29	211.30		

473442118162208. Local number, 24/36-16A8.
LOCATION.--Lat 47°34'42", long 118°16'22", Hydrologic Unit 17020013, near Davenport.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 10 in (250 mm), depth 750 ft (228.6 m), cased to 75 ft (22.9 m).
DATUM.--Land-surface datum is 2,372 ft (723.0 m) above mean sea level.
REMARKS.--Monitored depth interval from 728 to 750 ft (221.9 to 228.6 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1971 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 162.82 ft (49.628 m) below land-surface datum, Mar. 22, 1972; lowest measured, 214.77 ft (65.462 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	196.53	Feb. 1, 1977	180.48	May 26, 1977	197.62	Aug. 22, 1977	214.77
Dec. 16	190.56	Mar. 22	181.08	July 29	211.39		

LINCOLN COUNTY--Continued

473547117493001. Local number, 24/39-1R1.
LOCATION.--Lat 47°35'47", long 117°49'30", Hydrologic Unit 17010307.
Owner: Vern Puls.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 200 ft (61.0 m), cased to 45 ft (13.7 m).
DATUM.--Land-surface datum is 2,420 ft (737.6 m) above mean sea level.
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.02 ft (4.273 m) below land-surface datum, Mar. 1, 1976; lowest measured, 56.00 ft (17.069 m) below land-surface datum, Sept. 7, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	24.26	Mar. 21, 1977	22.15				

474130118293001. Local number, 25/34-2G1.
LOCATION.--Lat 47°41'30", long 118°29'30", Hydrologic Unit 17020013.
Owner: Merwin Hauger.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 320 ft (97.5 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum is 2,340 ft (713.2 m) above mean sea level.
PERIOD OF RECORD.--October 1968, March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 84.76 ft (25.835 m) below land-surface datum, Oct. 22, 1976; lowest measured, 122.0 ft (37.19 m) below land-surface datum, July 13, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	84.76	Mar. 22, 1977	93.0				

474401118471001. Local number, 26/32-21J1.
LOCATION.--Lat 47°44'01", long 118°47'10", Hydrologic Unit 17020013.
Owner: Glen Anderson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 453 ft (138.1 m), cased to 21 ft (6.4 m).
DATUM.--Land-surface datum is 2,082 ft (634.6 m) above mean sea level.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured 144.0 ft (43.891 m) below land-surface datum, Mar. 16, 1972 and Oct. 18, 1976; lowest measured 298.0 ft (90.83 m) below land-surface datum, Sept. 6, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	144.0	Mar. 22, 1977	158.				

474512118423001. Local number, 26/33-18G1.
LOCATION.--Lat 47°45'12", long 118°42'30", Hydrologic Unit 17020013.
Owner: City of Wilbur.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 450 ft (137.2 m), cased to 50 ft (15.2 m).
DATUM.--Land-surface datum is 2,245 ft (684.3 m) above mean sea level.
PERIOD OF RECORD.--November 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.09 ft (14.963 m) below land-surface datum, Apr. 6, 1971; lowest measured, 85.5 ft (26.06 m) below land-surface datum, July 13, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 18, 1976	69.4	Mar. 22, 1977	55.79				

OKANOGAN COUNTY

484033119310302. Local number, 37/26-26J1.
LOCATION.--Lat 48°40'33", long 119°31'03", Hydrologic Unit 17020006.
Owner: Plateau Orchards, Inc.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 90 ft (27.4 m), cased to 90 ft (27.4 m).
DATUM.--Land-surface datum is 1,431.84 ft (436.425 m) above mean sea level.
PERIOD OF RECORD.--July 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.38 ft (16.575 m) below land-surface datum, Apr. 23, 1975; lowest dry, water level not measureable, Aug. 25, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	55.14	Feb. 8, 1977	54.57	May 24, 1977	56.54	July 19, 1977	58.24
Dec. 16	54.69	Mar. 30	55.13				

OKANOGAN COUNTY--Continued

484312119321301. Local number, 37/26-10H1.
LOCATION.--Lat 48°43'12", long 119°32'13", Hydrologic Unit 17020006.
Owner: Loy McDaniel.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 10 in (250 mm), depth 95 ft (29.0 m).
DATUM.--Land-surface datum is 1,450 ft (442.0 m) above mean sea level.
PERIOD OF RECORD.--November 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 73.48 ft (22.397 m) below land-surface datum, Apr. 23, 1975; lowest measured, 104.18 ft (31.754 m) below land-surface datum, July 29, 1971.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	76.84	Feb. 8, 1977	75.76	May 24, 1977	77.51	July 19, 1977	78.92
Dec. 16	76.05	Mar. 30	75.70				

SPOKANE COUNTY

471547117402301. Local number, 21/41-31R1.
LOCATION.--Lat 47°15'47", long 117°40'23", Hydrologic Unit 17060109.
Owner: Osborn Belsby.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled stock-supply artesian well, diameter 10 in (250 mm), depth 120 ft (36.6 m).
DATUM.--Land-surface datum is 2,070 ft (630.9 m) above mean sea level.
PERIOD OF RECORD.--February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.65 ft (0.198 m) above land-surface datum, Apr. 22, 1969; lowest measured, 16.36 ft (4.987 m) below land-surface datum, Oct. 24, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	3.71	Mar. 23, 1977	10.04				

472540117224501. Local number, 22/43-4F1.
LOCATION.--Lat 47°25'40", long 117°22'45", Hydrologic Unit 17010306 at Spangle.
Owner: Town of Spangle.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-table well, depth 150 ft (45.7 m).
DATUM.--Land-surface datum is 2,440 ft (743.7 m) above mean sea level.
PERIOD OF RECORD.--February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 23.83 ft (7.263 m) below land-surface datum, Apr. 24, 1969; lowest measured, 132.4 ft (40.356 m) below land-surface datum, July 10, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	31.86	Mar. 23, 1977	33.77				

472804117403401. Local number, 23/41-19R1.
LOCATION.--Lat 47°28'04", long 117°40'34", Hydrologic Unit 17060108.
Owner: P. M. Steele.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 516 ft (157.3 m), cased to 24 ft (7.3 m).
DATUM.--Land-surface datum is 2,365 ft (720.9 m) above mean sea level.
PERIOD OF RECORD.--June 1956, February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.0 ft (16.46 m) below land-surface datum, June 24, 1956; lowest measured, 103.7 ft (31.61 m) below land-surface datum, Sept. 2, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 22, 1976	102.0	Mar. 21, 1977	96.1				

473240117261901. Local number, 24/42-25G1.
LOCATION.--Lat 47°32'40", long 117°26'19", Hydrologic Unit 17010306.
Owner: Henry F. Mindrup.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 135 ft (41.1 m), cased to 25 ft (7.6 m).
DATUM.--Land-surface datum about 2,320 ft (707.1 m) above mean sea level.
PERIOD OF RECORD.--February 1964 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 18.29 ft (5.575 m) below land-surface datum, May 6, 1969; lowest measured, 52.39 ft (15.968 m) below land-surface datum, Sept. 19, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 1, 1977	28.62	June 21, 1977	38.8A	July 20, 1977	39.9A	Aug. 26, 1977	45.8A

A Well being pumped.

SPOKANE COUNTY--Continued

473607117322801. Local number, 24/42-6J1.
LOCATION.--Lat 47°36'07", long 117°32'28", Hydrologic Unit 17010306.
Owner: Robert Welsh.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 115 ft (35.1 m), cased to 60 ft (18.3 m).
DATUM.--Land-surface datum about 2,395 ft (730.0 m) above mean sea level.
PERIOD OF RECORD.--October 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 35.01 ft (10.671 m) below land-surface datum, Mar. 24, 1975; lowest measured, 42.65 ft (13.000 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 1, 1977	37.35	June 21, 1977	39.49	July 20, 1977	41.98	Aug. 22, 1977	42.65

473924117130001. Local number, 25/44-23D1.
LOCATION.--Lat 47°39'24", long 117°13'00", Hydrologic Unit 17010305, at U.S. Highway 10 and Evergreen Road.
Owner: Mr. Boisevert.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 48 to 18 in (1,200 to 450 mm), depth 97 ft (29.6 m), lined with brick to 97 ft (29.6 m).
DATUM.--Land-surface datum is 2,016.74 ft (614.702 m) above mean sea level.
PERIOD OF RECORD.--April 1931 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 77.85 ft (23.729 m) below land-surface datum, Apr. 8, 1950; lowest measured, 95.40 ft (29.078 m) below land-surface datum, Dec. 8, 1931.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 4, 1977	92.17	Apr. 15, 1977	90.88	June 21, 1977	90.97	Aug. 22, 1977	93.85
Mar. 22	92.77	May 24	90.23	July 20	93.25	Sept. 23	93.26

473849117275401. Local number, 25/42-14L01.
LOCATION.--Lat 47°39'40", long 117°27'54", Hydrologic Unit 17010307.
Owner: Riverside Memorial Park.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 72 mi (1,800 mm), depth 110 ft (33.5 m), lined with concrete to 82 ft (25.0 m), perforated 82 to 100 ft (25.0 to 30.5 m).
DATUM.--Land-surface datum about 1,787 ft (544.7 m) above mean sea level.
REMARKS.--Water levels used in monthly Water Resources Review.
PERIOD.--December 1941 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 81.73 ft (24.911 m) below land-surface datum, June 7, 1948; lowest measured, 101.96 ft (31.077 m) below land-surface datum, Sept. 24, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 26, 1976	97.14	Apr. 22, 1976	98.03A	June 21, 1977	97.44A	Aug. 22	100.39A
Dec. 21	97.84	May 24	99.84	July 20	101.16A	Sept.23	99.12
Mar. 22	101.84						

473952117181301. Local number, 25/43-13H1.
LOCATION.--Lat 47°39'52", long 117°18'13", Hydrologic Unit 17010305, Spokane.
Owner: Dr. Henry Weitz.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 18 in (450 mm), depth 71 ft (21.6 m), lined with concrete to 70 ft (21.3 m).
DATUM.--Land-surface datum about 1,960 ft (597 m) above mean sea level.
PERIOD OF RECORD.--October 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 55.57 ft (16.938 m) below land-surface datum, June 26, 1974; lowest measured, 69.53 ft (21.193 m) below land-surface datum, Sept. 20, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Mar. 4, 1977	67.67	Apr. 15, 1977	66.95	May 24, 1977	66.00	June 21, 1977	66.53
Mar. 22	67.21						

474011117072901. Local number, 25/45-16C1.
LOCATION.--Lat 47°40'11", long 117°07'29", Hydrologic Unit 17010305.
Owner: Inland Empire Paper Company.
AQUIFER.--Glacial sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug unused irrigation water-table well, diameter 96 in (2,400 mm), depth 129 ft (39.3 m), lined with gunite cement to 129 ft (39.3 m).
DATUM.--Land-surface datum is 2,060.4 ft (628.01 m) above mean sea level.
PERIOD OF RECORD.--April 1929 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 84.56 ft (25.774 m) below land-surface datum, June 17, 1953; lowest measured, 114.53 ft (34.909 m) below land-surface datum, Dec. 8, 1931.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Jan. 7, 1977	106.96	Apr. 15, 1977	107.69	June 21, 1977	10[illegible].77	Aug. 22, 1977	111.13
Mar. 22	107.59	May 24	107.01	July 20	109.91	Sept.23	110.36

A Well being pumped.

SPOKANE COUNTY--Continued

474224117075901. Local number, 26/45-32J2.
LOCATION.--Lat 47°42'24", long 117°07'59", Hydrologic Unit 17010305, Otis Orchards.
Owner: John Fry.
AQUIFER.--Glacial sand and gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled unused irrigation water-table well, diameter 8 in (200 mm), depth 155 ft (47.2 m), cased to 155 ft (47.2 m), perforated from 132 to 154 ft (40.2 to 47.0 m).
DATUM.--Land-surface datum about 2,080 ft (634 m) above mean sea level.
PERIOD OF RECORD.--November 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 116.14 ft (35.399 m) below land-surface datum, June 15, 1961; lowest measured, 135.26 ft (41.227 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Nov. 4, 1976	130.0	Mar. 22, 1977	131.7	June 21, 1977	131.85	Aug. 22, 1977	135.26
Dec. 12	130.8	Apr. 15	131.1	July 20	133.98	Sept. 23	134.57
Feb. 15	131.5	May 24	131.4				

474436117245501. Local number, 26/43-19A1.
LOCATION.--Lat 47°44'36", long 117°24'55", Hydrologic Unit 17010308.
Owner: Whitworth Water District No. 2.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Dug public-supply and irrigation water-table well, diameter 78 in (1,950 mm), depth 162 ft (49.4 m), lined with concrete to 162 ft (49.4 m).
DATUM.--Land-surface datum is 1,935.91 ft (590.065 m) above mean sea level.
PERIOD OF RECORD.--November 1930 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 133.72 ft (40.758 m) below land-surface datum Mar. 15, 1934; lowest measured, 149.47 ft (45.558 m) below land-surface datum, Aug. 22, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 29, 1976	137.46	Feb. 15, 1977	136.57	June 22, 1977	141.51A	Aug. 22, 1977	149.47A
Dec. 20	138.62A	Apr. 15	137.62	July 20	147.73A	Sept.23	140.59

STEVENS COUNTY

475525117465301. Local number, 28/40-17J1.
LOCATION.--Lat 47°55'25", long 117°46'53", Hydrologic Unit 17010307, at Ford.
Owner: R. J. Seagle.
AQUIFER.--Alluvial sand and gravel of Holocene Age.
WELL CHARACTERISTICS.--Dug irrigation water-table well, diameter 36 in (900 mm), depth 20 ft (6.1 m), lined with concrete to 20 ft (6.1 m).
DATUM.--Land-surface datum about 1,790 ft (545.6 m) above mean sea level.
PERIOD OF RECORD.--October 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.45 ft (0.137 m) below land-surface datum, Jan. 23, 1974; lowest measured, 19.05 ft (5.806 m) below land-surface datum, Dec. 13, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 27, 1976	13.20	Feb. 7, 1977	15.05	June 6, 1977	15.89	Aug. 1, 1977	17.85
Dec. 13	19.05	Apr. 11	12.06				

WALLA WALLA COUNTY

460014118281801. Local number, 6/35-18A1.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, water-table well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Land-surface datum is 670 ft (204 m) above mean sea level.
REMARKS.--Monitored depth interval from 90 to 230 ft (27.4 to 70.1 m), water level measured in 12 in (300 mm) diameter casing.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.40 ft (7.742 m) below land-surface datum, Apr. 1, 1974; lowest measured, 45.70 ft (13.929 m) below land-surface datum, Jan. 27, 1975.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 29, 1976	27.9	Jan. 17, 1977	26.5	Mar. 9, 1977	26.9	June 27, 1977	32.1

A Well being pumped.

WALLA WALLA COUNTY--Continued

460014118281802. Local number, 6/35-18A2.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Land-surface datum is 670 ft (204 m) above mean sea level.
REMARKS.--Monitored depth interval from 710 to 730 ft (216.4 to 222.5 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.20 ft (43.952 m) below land-surface datum, Apr. 1, 1974; lowest measured, 194.5 ft (59.28 m) below land-surface datum, June 27, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 29, 1976	193.9	Jan. 17, 1977	168.6	Mar. 9, 1977	157.2	June 27, 1977	194.5

460014118281803. Local number, 6/35-18A3.
LOCATION.--Lat 46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Land-surface datum is 670 ft (204 m) above mean sea level.
REMARKS.--Monitored depth interval from 740 to 1,204 ft (225.6 to 337.0 m), water level measured in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.10 ft (44.226 m) below land-surface datum, Apr. 1, 1974; lowest measured, 194.9 ft (59.41 m) below land-surface datum, June 27, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 29, 1976	194.2	Jan. 17, 1977	169.0	Mar. 9, 1977	157.5	June 27, 1977	194.9

460014118281804. Local number, 6/35-18A4.
LOCATION.--46°00'14", long 118°28'18", Hydrologic Unit 17070102, near Walla Walla.
Owner: State of Washington, Department of Ecology.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled observation-test, artesian well, diameter 12 to 8 in (300 to 200 mm), depth 1,308 ft (398.7 m), 12 in (300 mm) diameter casing from 0 to 273 ft (0 to 83.2 m), 10 in (250 mm) diameter casing from 250 to 680 ft (76.2 to 207.3 m), 8 in (200 mm) diameter casing from 670 to 730 ft (204.2 to 222.5 m), perforations from 90 to 230 ft (27.4 to 70.1 m) and from 710 to 730 ft (216.4 to 222.5 m).
DATUM.--Land-surface datum is 670 ft (204 m) above mean sea level.
REMARKS.--Monitored depth interval from 1,216 to 1,308 ft (370.6 to 398.7 m), water level measure in piezometer.
PERIOD OF RECORD.--September 1973 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 145.60 ft (44.379 m) below land-surface datum, Apr. 1, 1974; lowest measured, 195.6 ft (59.62 m) below land-surface datum, June 27, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 29, 1976	195.0	Jan. 17, 1977	169.7	Mar. 9, 1977	158.4	June 27, 1977	195.6

460020118225701. Local number, 6/35-12N1.
LOCATION.--Lat 46°00'20", long 118°22'57", Hydrologic Unit 17010305.
Owner: Wynn Estes.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 10 to 8 in (250 to 200 mm), depth 590 ft (179.8 m), cased to 495 ft (150.9 m).
DATUM.--Land-surface datum about 768 ft (234.1 m) above mean sea level.
PERIOD OF RECORD.--April 1955 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 64 ft (19.5 m) above land-surface datum, Oct. 23, 1962; lowest measured, 86.3 ft (26.30 m) belo land-surface datum, Oct. 29, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 29, 1976	86.3	Mar. 8, 1977	61.8				

460238118225301. Local number, 7/35-36F1.
LOCATION.--Lat 46°02'38", long 118°22'53", Hydrologic Unit 17070102, at College Place.
Owner: College Place College Place.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply artesian well, diameter 8 in (200 mm), depth 810 ft (246.9 m).
DATUM.--Land-surface datum is 796 ft (242.6 m) above mean sea level.
PERIOD OF RECORD.--March 1948, April 1955 to February 1957, October 1959 to October 1962, March 1964 to November 1973, October 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.0 ft (11.28 m) above land-surface datum, Mar. 18, 1948; lowest measured, 146.2 ft (44.56 m) below land-surface datum, Oct. 29, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 29, 1976	146.2	Mar. 9, 1977	112.8B				

B Well recently pumped.

WALLA WALLA COUNTY--Continued

460335118172301. Local number, 7/36-27G1.
LOCATION.--Lat 46°03'35", long 118°17'23", Hydrologic Unit 17010305.
Owner: Rudolph Depping.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 10 to 8 in (250 to mm), depth 450 ft (137.2 m), cased to 357 ft (108.8 m).
DATUM.--Land surface datum about 1,100 ft (335 m) above mean sea level.
PERIOD OF RECORD.--April 1955 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.0 ft (0.61 m) above land-surface datum, Apr. 19, 1956; lowest measured, 60 ft (18.3 m) below land-surface datum, Nov. 29, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 29, 1976	49.9	Mar. 8, 1977	46.5				

460341118350701. Local number, 7/34-29C1.
LOCATION.--Lat 46°03'41", long 118°35'07", Hydrologic Unit 17010305.
Owner: Lowden A. Johnson.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 to 6 in (300 to 150 mm), depth 1,201 ft (366.1 m), cased to 610 ft (185.9 m).
DATUM.--Land-surface datum about 505 ft (153.9 m) above mean sea level.
PERIOD OF RECORD.--October 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 68 ft (20.7 m) below land-surface datum, Mar. 3, 1966; lowest measured, 116.8 ft (35.60 m) below land-surface datum, Sept. 25, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 29, 1976	109.6	Mar. 8, 1977	115.3				

460457118200901. Local number, 7/36-17L1.
LOCATION.--Lat 46°04'57", long 118°20'09", Hydrologic Unit 17070102, Veteran's Memorial Park.
Owner: City of Walla Walla.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 to 8 in (300 to 200 mm), depth 2,728 ft (831.5 m), cased to 2,155 ft (656.8 m).
DATUM.--Land-surface datum about 1,010 ft (308 m) above mean sea level.
PERIOD OF RECORD.--April 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 49.51 ft (15.091 m) below land-surface datum, May 10, 1960; lowest measured, 166.70 ft (50.810 m) below land-surface datum, Aug. 2, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 29, 1976	164.9	Mar. 9, 1977	133.5				

WHITMAN COUNTY

463623117054501. Local number, 13/45-13L2.
LOCATION.--Lat 46°36'23", long 117°05'45", Hydrologic Unit 17060108.
Owner: Alfred Druffel.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 190 ft (57.9 m), lined with steel to 60 ft (18.3 m).
DATUM.--Land-surface datum about 2,680 ft (817 m) above mean sea level.
PERIOD OF RECORD.--May 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 71.95 ft (21.930 m) below land-surface datum, Mar. 24, 1964; lowest measured, 78.70 ft (23.988 m) below land-surface datum, Oct. 10, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1976	76.5	Mar. 28, 1977	75.4				

464343117131701. Local number 14/44-1E1.
LOCATION.--Lat 46°43'43", long 117°13'17", Hydrologic Unit 17060108, near Pullman.
Owner: R. Harlow.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (150 mm), depth 375 ft (114.3 m).
DATUM.--Land-surface datum about 2,565 ft (781.8 m) above mean sea level.
PERIOD OF RECORD.--August 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 250.90 ft (76.474 m) below land-surface datum, Feb. 8, 1977; lowest measured, 271.00 ft (82.601 m) below land-surface datum, Aug. 21, 1974.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1976	257.4	Feb. 8, 1977	250.9	May 23, 1977	252.8	Sept. 1, 1977	254.9
Dec. 8	252.9	Apr. 11	253.5	July 11	255.9		

WHITMAN COUNTY--Continued

464349117101101. Local number, 14/45-5F1.
LOCATION.--Lat 46°43'49", long 117°10'11", Hydrologic Unit 17060108, Pullman.
Owner: Washington State University, well No. 1.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 4 in (100 mm), depth 145 ft (44.2 m), cased.
DATUM.--Land-surface datum is 2,564.4 ft (720.7 m) above mean sea level.
PERIOD OF RECORD.--March 1935 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.52 ft (5.950 m) below land-surface datum, Mar. 19, 1935; lowest measured, 83.4 ft (25.42 m) below land-surface datum, Feb. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1976	81.4	Feb. 9, 1977	83.4	May 25, 1977	81.5	Aug. 30, 1977	83.2
Dec. 7	81.1	Mar. 28	81.	July 13	82.5		

464408117103202. Local number, 15/45-32N2.
LOCATION.--Lat 46°44'08", long 117°10'32", Hydrologic Unit 17060108, Richie and Grand Street, Pullman.
Owner: City of Pullman, well No. 4.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply artesian well, diameter 16 to 12 in (400 to 300 mm), depth 954 ft (290.8 m), cased to 399 ft (121.6 m).
DATUM.--Land-surface datum about 2,356 ft (718.1 m) above mean sea level.
PERIOD OF RECORD.--April 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.98 ft (7.919 m) below land-surface datum, May 24, 1960; lowest measured, 128.4 ft (39.14 m) below land-surface datum, June 21, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1976	63.1	Feb. 9, 1977	112.4	May 25, 1977	63.0	Aug. 30, 1977	64.6
Dec. 7	126.8	Mar. 30	62.9	July 13	64.1		

464408117103203. Local number, 15/45-32N3.
LOCATION.--Lat 46°44'08", long 117°10'32", Hydrologic Unit 17060108, at Pullman.
Owner: City of Pullman.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (500 mm), depth 238 ft (72.5 m), cased to 238 ft (72.5 m).
DATUM.--Land-surface datum, is 2,356 ft (718.1 m) above mean sea level.
PERIOD OF RECORD.--December 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 24.32 ft (7.413 m) below land-surface datum, Dec. 16, 1957; lowest measured, 65.4 ft (19.93 m) below land-surface datum, Oct. 13, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1976	65.4	Feb. 9, 1977	63.0	May 25, 1977	63.1	Aug. 30, 1977	64.8
Dec. 7	63.4	Mar. 30	63.3	July 13	64.3		

465800117343001. Local number, 17/42-18M1.
LOCATION.--Lat 46°58'00", long 117°34'30", Hydrologic Unit 17060108, near Thera.
Owner: Phil Smick.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 8 in (200 mm), depth 204 ft (62.2 m).
DATUM.--Land-surface datum about 2,035 ft (620.3 m) above mean sea level.
PERIOD OF RECORD.--December 1954 to August 1956, April 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 144.65 ft (44.089 m) below land-surface datum, Apr. 6, 1972; lowest measured, 165.2 ft (50.35 m) below land-surface datum, July 3, 1972.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	162.3B	Mar. 24, 1977	145.6				

470452117414401. Local number, 18/41-6L1.
LOCATION.--Lat 47°04'52", long 117°41'44", Hydrologic Unit 17060109.
Owner: Lyle Harwood.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 in (300 mm), depth 575 ft (175.3 m).
DATUM.--Land-surface datum is 1,940 ft (531.3 m) above mean sea level.
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 46.9 ft (14.30 m) below land-surface datum, Mar. 14, 1968; lowest measured, 474 ft (144.5 m) below land-surface datum, Mar. 23, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	72.64	Mar. 23, 1977	474.A				

A Well being pumped.
B Well recently pumped.

WHITMAN COUNTY--Continued

470707117040502. Local number, 19/45-25G2.
LOCATION.--Lat 47°07'07", long 117°04'05", Hydrologic Unit 17060109.
Owner: Bert Lehn.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 12 in (300 mm), depth 134 ft (40.8 m).
DATUM.--Land-surface datum about 2,600 ft (792.5 m) above mean sea level.
PERIOD OF RECORD.--December 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 16.49 ft (5.026 m) below land-surface datum, Feb. 27, 1968; lowest measured, 42.83 ft (13.055 m) below land-surface datum, Dec. 22, 1967.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	29.98	Mar. 24, 1977	39.80				

470718117232801. Local number, 19/43-28B1.
LOCATION.--Lat 47°07'18", long 117°23'28", Hydrologic Unit 17060109, near Thornton.
Owner: McGregor Co.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled industrial artesian well, diameter 8 in (200 mm), depth 84 ft (25.6 m).
DATUM.--Land-surface datum about 2,290 ft (698.0 m) above mean sea level.
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.14 ft (3.700 m) above land-surface datum, Mar. 3, 1976; lowest measured, 2.0 ft (0.61 m) above land-surface datum, Oct. 29, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	+10.34	Mar. 30, 1977	+10.94				

471413117510801. Local number, 20/39-12N1.
LOCATION.--Lat 47°14'13", long 117°51'08", Hydrologic Unit 17060109, near Lamont.
Owner: Earl Swift.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 10 in (250 mm), depth 284 ft (86.6 m).
DATUM.--Land-surface datum about 2,110 ft (643.1 m) above mean sea level.
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 159.7 ft (48.68 m) below land-surface datum, Nov. 5, 1975; lowest measured, 170.07 ft (51.837 m) below land-surface datum, Oct. 21, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 21, 1976	170.07	Mar. 23, 1977	165.8				

YAKIMA COUNTY

461934120003701. Local number, 10/22-25F1.
LOCATION.--Lat 46°19'34", long 120°00'37", Hydrologic Unit 17030003, at Sunnyside.
Owner: City of Sunnyside.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled public-supply water-level well, diameter 16 in (400 mm), depth 1,570 ft (478.5 m), cased to 1,283 ft (391.1 m).
DATUM.--Land-surface datum is about 745 ft (227.1 m) above mean sea level.
PERIOD OF RECORD.--May 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.7 ft (6.00 m) below land-surface datum, Jan. 2, 1974; lowest measured, 122.0 ft (37.19 m) below land-surface datum, July 31, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 19, 1976	67.8	Jan. 19, 1977	62.6	May 9, 1977	60.01	Sept. 15, 1977	70.7
Dec. 1	64.9	Mar. 18	60.8	July 5	68.7		

463022120095801. Local number, 12/21-27A1.
LOCATION.--Lat 46°30'22", long 120°09'58", Hydrologic Unit 17030003, Moxee Plant Quarantine Station.
Owner: Washington Department of Agriculture.
AQUIFER.--Sand of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 12 to 10 in (300 to 250 mm), depth 295 ft (89.9 m), cased to 295 ft (89.9 m), perforated 193 to 295 ft (58.8 to 89.9 m).
DATUM.--Land-surface datum about 1,555 ft (474.0 m) above mean sea level.
PERIOD OF RECORD.--May 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 200 ft (61.0 m) below land-surface datum, Jan. 15, 1966, Feb. 24, 1966, Mar. 28, 1966, Apr. 28, 1967; lowest measured, 241 ft (73.5 m) below land-surface datum, Oct. 6, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 6, 1976	241.	Mar. 21, 1977	220.5	Sept. 12, 1977	238.6		

* Water levels above land surface.

YAKIMA COUNTY--Continued

463200120462002. Local number, 12/16-13D2.
LOCATION.--46°32'00", long 120°46'20", Hydrologic Unit 17030003.
Owner: Herke Brothers.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled test water-table well, diameter 8 in (200 mm), depth 130 ft (39.6 m).
DATUM.--Land-surface datum about 1,800 ft (549 m) above mean sea level.
PERIOD OF RECORD.--March 1951 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 50.37 ft (15.353 m) below land-surface datum, June 15, 1951; lowest measured, 124.7 ft (38.01 m) below land-surface datum, Sept. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1976	112.2	Mar. 24, 1977	101.9	July 14, 1977	107.5	Sept. 9, 1977	124.7
Jan. 1, 1977	102.8						

463201120413002. Local number, 12/17-16A2.
LOCATION.--Lat 46°32'01", long 120°41'30", Hydrologic Unit 17030003, near Wiley City.
Owner: Robert Wiley.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 12 in (300 mm), depth 868 ft (264.6 m), cased to 532 ft (162.2 m).
DATUM.--Land-surface datum about 1,465 ft (446.5 m) above mean sea level.
PERIOD OF RECORD.--February 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 123.0 ft (37.49 m) above land-surface datum, Mar. 29, 1968; lowest measured, 81.5 ft (24.84 m) below land-surface datum, Mar. 24, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1976	53.8	Mar. 24, 1977	81.5				

463210120523001. Local number, 12/16-18C1.
LOCATION.--Lat 46°32'10", long 120°52'30", Hydrologic Unit 17030003, near Tampico.
Owner: Mandor-Hazen.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation water-table well, diameter 14 in (350 mm), depth 287 ft (87.5 m), cased to 80 ft (24.4 m).
DATUM.--Land-surface datum about 2,200 ft (670.6 m) above mean sea level.
PERIOD OF RECORD.--May 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.55 ft (1.387 m) below land-surface datum, July 21, 1972; lowest measured, 238.2 ft (72.60 m) below land-surface datum, Aug. 2, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1976	34.7	Mar. 24, 1977	13.2	Sept. 9, 1977	29.8		

463212120432301. Local number, 12/17-17C1.
LOCATION.--Lat 46°32'12", long 120°43'23", Hydrologic Unit 17030003.
Owner: R. C. Cornelius.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled irrigation artesian well, diameter 8 in (200 mm), depth 243 ft (74.1 m), cased to 166 ft (50.6 m).
DATUM.--Land-surface datum about 1,562 ft (476.1 m) above mean sea level.
PERIOD OF RECORD.--June 1959 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.60 ft (0.792 m) above land-surface datum, May 22, 1962; lowest measured, 118.6 ft (36.15 m) below land-surface datum, Sept. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1976	80.8	Mar. 24, 1977	47.6	Sept. 9, 1977	118.6		

463226120412901. Local number, 12/17-9J3.
LOCATION.--Lat 46°32'26", long 120°41'29", Hydrologic Unit 17030003.
Owner: Walter McInnes.
AQUIFER.--Basalt of Miocene to Pliocene Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (100 mm), depth 479 ft (146.0 m), cased to 430 ft (131.1 m).
DATUM.--Land-surface datum about 1,460 ft (445 m) above mean sea level.
PERIOD OF RECORD.--January 1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 66.80 ft (20.361 m) below land-surface datum, July 20, 1953; lowest measured, 186.8 ft (56.94 m) below land-surface, Sept. 9, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 14, 1976	154.9	Jan. 27, 1977	118.9	May 19, 1977	111.0	Sept. 9, 1977	186.8
Dec. 3	152.9	Mar. 24	92.2	July 14	153.4		

YAKIMA COUNTY--Continued

464023120423401. Local number, 14/17-28L1.
LOCATION.--Lat 46°40'23", long 120°42'34", Hydrologic Unit 17030002, at Cowiche.
Owner: Robert Tate.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled domestic water-table well, diameter 6 in (150 mm), depth 82 ft (25.0 m).
DATUM.--Land-surface datum is 1,738 ft (529.7 m) above mean sea level.
PERIOD OF RECORD.--May 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level meausred, 16.1 ft (4.91 m) below land-surface datum, Oct. 24, 1974; lowest measured, 24.2 ft (7.38 m) below land-surface datum, Aug. 2, 1973.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 13, 1976	16.6	Jan. 25, 1977	18.8	July 13, 1977	23.3	Sept. 13, 1977	22.2
Dec. 2	19.6	Mar. 22	19.5				

464445120360001. Local number, 15/18-32K3.
LOCATION.--Lat 46°44'45", long 120°36'00", Hydrologic Unit 17030001.
Owner: Wenas Valley Grange.
AQUIFER.--Glacial gravel of Pleistocene Age.
WELL CHARACTERISTICS.--Drilled institutional water-table well, diameter 8 to 6 in (200 to 150 mm), depth 85 ft (25.9 m), cased.
DATUM.--Land-surface datum about 1,460 ft (445 m) above mean sea level.
PERIOD OF RECORD.--June 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 37.73 ft (11.500 m) below land-surface datum, Oct. 23, 1957; lowest measured, 74.14 ft (22.598 m) below land-surface datum, Nov. 6, 1969.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
Oct. 5, 1976	49.1	Mar. 23, 1977	48.0	July 13, 1977	49.9	Sept. 13, 1977	45.7
Jan. 25, 1977	48.5						

QUALITY OF GROUND WATER

BENTON COUNTY

WATER QUALITY DATA, APRIL 1976 TO APRIL 1977

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	DEPTH TO TOP OF WATER-BEARING ZONE (FT)	DEPTH TO BOT-TOM OF SAMPLE INTER-VAL (FT)	DEPTH TO TOP OF SAMPLE INTER-VAL (FT)
10/28E-11C03	462224119162601	46 22 24	119 16 26	01	77-04-25	1130	--	78	25
10/28E-11F03	462206119162301	46 22 06	119 16 23	01	77-04-25	0945	--	--	--
10/28E-14D01	462126119164701	46 21 26	119 16 47	01	76-04-05	0930	42	79	59
11/27E-02Q01	462732119233501	46 27 32	119 23 35	01	76-04-05	1330	126	166	126
11/27E-26C01	462500119240101	46 25 00	119 24 01	01	77-04-25	1405	--	132	117
11/28E-09R01	462648119180701	46 26 48	119 18 07	01	77-04-25	1520	--	--	--
11/28E-23D01	462552119164101	46 25 52	119 16 41	01	76-04-05	1130	47	200	47
11/28E-29P01	462420119201201	46 24 20	119 20 12	01	77-04-25	1240	--	88	68
12/25E-11H01	463212119381301	46 32 12	119 38 13	01	77-04-28	1130	--	279	180
12/26E-04N01	463300119341401	46 33 00	119 34 14	01	77-04-27	1525	--	374	359
12/26E-07R01	463242119361901	46 32 42	119 36 19	01	76-04-08	1335	256	380	256
12/26E-07Q01	463207119361601	46 32 07	119 36 16	01	76-04-08	1230	240	320	255
12/26E-12H01	463228119294701	46 32 28	119 29 47	01	76-04-08	1020	286	495	286
12/26E-13A01	463200119293201	46 32 00	119 29 32	01	76-04-08	0910	136	--	--
12/26E-13H01	463146119293901	46 31 46	119 29 39	01	76-04-06	1530	112	119	112
					77-04-26	1505	--	119	109
12/26E-15C01	463155119325201	46 31 55	119 32 52	01	76-04-09	1020	312	440	315
					77-04-28	1010	--	440	315
12/26E-18E01	463143119364501	46 31 43	119 36 45	01	76-04-08	1130	210	485	210
12/26E-25Q01	462928119295101	46 29 28	119 29 51	01	77-04-28	1345	--	185	127
12/27E-03N01	462741119253101	46 27 41	119 25 31	01	76-04-07	1510	110	160	110
12/27E-05Q01	463301119273201	46 33 01	119 27 32	01	77-04-26	1330	--	185	115
12/27E-15Q01	463138119244801	46 31 38	119 24 48	01	76-04-06	1220	116	169	116
					77-04-26	1205	--	169	111
12/27E-20P01	463014119273601	46 29 29	119 27 36	01	76-04-06	1345	121	164	129
12/27E-24N01	463035119230401	46 30 35	119 23 04	01	76-04-06	1050	45	150	45
12/27E-27N01	462937119242501	46 29 37	119 24 25	01	76-04-06	0930	105	155	105
12/27E-33J01	462856119255101	46 28 56	119 25 51	01	76-04-05	1605	123	150	123
12/28E-18D01	463152119215001	46 31 52	119 21 50	01	76-04-07	1205	116	135	120
12/28E-19F01	463049119213201	46 30 49	119 21 32	01	76-04-07	1045	73	145	80
					77-04-26	1030	--	145	80
12/28E-28Q01	462940119182501	46 29 40	119 18 25	01	77-04-26	0905	--	307	297
13/25E-11H01	463743119384401	46 37 43	119 38 44	01	77-04-27	1215	--	102	49
13/25E-30D01	463510119441301	46 35 10	119 44 13	01	77-04-27	1320	--	200	165
13/26E-31K01	463414119362501	46 34 14	119 36 25	01	77-04-27	1420	--	302	251
13/26E-34C01	463432119325001	46 34 32	119 32 50	01	76-04-08	1540	124	135	125
					77-04-27	0945	--	135	125
13/26E-34D01	463425119330401	46 34 25	119 33 04	01	76-04-08	1445	148	161	148
13/27E-31H01	463349119293601	46 33 49	119 29 36	01	77-04-28	1235	--	180	156
14/26E-28Q01	464024119340001	46 40 24	119 34 00	01	77-04-27	1100	--	78	50

BENTON COUNTY--Continued

WATER QUALITY DATA, APRIL 1976 TO APRIL 1977

LOCAL IDENT-I-FIER	DATE OF SAMPLE	ELEV. OF LAND SURFACE DATUM (FT. ABOVE MSL)	PUMP OR FLOW PERIOD PRIOR TO SAM-PLING (MIN)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)
10/28E-11C03	77-04-25	375	30	330	8.0	15.9	2	0	110	28
10/28E-11F03	77-04-25	378	40	302	7.5	17.5	1	1	96	6
10/28E-14D01	76-04-05	388	30	395	7.6	16.7	0	0	150	0
11/27E-02Q01	76-04-05	522	25	436	8.0	18.4	5	10	150	29
11/27E-26C01	77-04-25	504	30	420	7.8	18.0	1	0	140	0
11/28E-09R01	77-04-25	440	30	352	8.0	17.0	1	0	140	17
11/28E-23D01	76-04-05	398	25	223	9.4	16.8	2	4	78	0
11/28E-29P01	77-04-25	635	30	395	7.9	17.3	2	2	150	25
12/25E-11H01	77-04-28	661	30	241	8.0	15.0	1	1	74	0
12/26E-04N01	77-04-27	748	30	405	7.7	21.4	1	0	170	30
12/26E-07B01	76-04-08	711	25	850	7.6	20.7	1	1	350	220
12/26E-07Q01	76-04-08	694	25	489	7.7	20.4	2	10	190	0
12/26E-12M01	76-04-08	690	25	367	8.0	21.0	0	2	95	0
12/26E-13A01	76-04-08	540	25	433	7.9	20.6	0	1	140	25
12/26E-13M01	76-04-06	516	30	425	7.9	19.6	5	5	110	0
	77-04-26	516	30	420	7.8	19.8	2	4	140	35
12/26E-15C01	76-04-09	717	25	416	7.8	21.7	4	4	150	0
	77-04-28	717	30	420	7.7	21.5	1	1	170	1
12/26E-18E01	76-04-08	668	25	297	7.8	20.5	10	20	120	5
12/26E-25Q01	77-04-28	573	30	380	7.8	18.1	1	0	150	46
12/27E-03N01	76-04-07	509	25	430	8.0	18.5	0	1	160	30
12/27E-05Q01	77-04-26	518	30	324	8.0	18.1	2	2	51	0
12/27E-15G01	76-04-06	518	25	515	8.0	18.2	1	1	190	73
	77-04-26	518	30	522	7.9	18.4	1	1	180	75
12/27E-20P01	76-04-06	524	25	455	7.9	19.4	0	0	170	36
12/27E-24M01	76-04-06	443	25	461	8.0	17.2	0	0	170	65
12/27E-27R01	76-04-06	506	25	460	7.9	17.5	0	0	180	62
12/27E-33J01	76-04-05	524	30	445	7.9	18.5	1	0	160	60
12/28E-18Q01	76-04-07	500	25	362	8.0	17.3	0	1	140	0
12/28E-19F01	76-04-07	466	25	468	8.0	18.3	0	1	180	58
	77-04-26	466	30	485	7.8	16.5	1	0	190	72
12/28E-28Q01	77-04-26	467	30	298	8.0	19.3	1	1	130	12
13/25E-11M01	77-04-27	472	30	310	7.6	39.1	1	0	130	34
13/25E-30G01	77-04-27	837	30	285	8.0	26.0	1	0	80	0
13/26E-31K01	77-04-27	688	30	317	7.9	19.3	1	3	130	35
13/26E-34C01	76-04-08	530	25	580	8.2	17.0	3	4	190	90
	77-04-27	530	30	635	8.2	17.4	1	2	220	140
13/26E-34D01	76-04-08	553	25	927	7.6	16.4	1	0	320	200
13/27E-31N01	77-04-28	577	30	285	8.0	18.0	2	2	110	10
14/26E-28G01	77-04-27	458	30	194	7.9	20.7	1	0	87	25

WATER QUALITY DATA, APRIL 1976 TO APRIL 1977

LOCAL IDENT-I-FIER	DATE OF SAMPLE	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	CARBON DIOXIDE (CO2) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
10/28E-11C03	77-04-25	33	5.5	21	3.1	94	0	77	1.5	25
10/28E-11F03	77-04-25	29	5.8	22	3.9	110	0	90	5.6	27
10/28E-14D01	76-04-25	44	8.0	21	6.5	191	0	157	4.8	29
11/27E-02Q01	76-04-05	44	9.9	21	7.3	148	0	121	2.4	61
11/27E-26C01	77-04-25	41	9.0	32	7.6	200	0	160	5.1	12
11/28E-09R01	77-04-25	30	11	17	6.0	150	0	120	2.4	49
11/28E-23D01	76-04-05	26	3.1	17	7.0	53	23	82	.1	25
11/28E-29P01	77-04-25	43	9.4	23	5.6	150	0	120	3.0	43
12/25E-11H01	77-04-28	19	6.4	23	3.2	120	0	98	1.9	13
12/26E-04N01	77-04-27	43	15	17	5.3	170	0	140	5.4	39
12/26E-07R01	76-04-08	42	29	21	7.3	154	0	126	6.2	33
12/26E-07J01	76-04-08	51	16	20	6.6	242	0	198	7.7	30
12/26E-12H01	76-04-08	25	7.9	41	8.4	184	0	151	2.9	45
12/26E-13A01	76-04-08	37	11	32	7.3	138	0	113	2.8	54
12/26E-13H01	76-04-06	30	2.9	29	7.0	143	0	117	2.9	52
	77-04-26	37	12	29	5.3	130	0	110	3.3	56
12/26E-15C01	76-04-09	41	12	25	6.1	209	0	171	5.3	41
	77-04-28	46	16	24	5.7	210	0	170	6.7	34
12/26E-18C01	76-04-08	20	12	16	4.3	140	0	115	3.6	27
12/26E-25G01	77-04-28	43	11	18	5.7	130	0	110	3.3	67
12/27E-23H01	76-04-07	46	12	22	7.3	154	0	126	2.5	68
12/27E-25J01	77-04-26	14	3.9	52	7.5	200	0	160	3.2	2.7
12/27E-15G01	76-04-06	53	13	29	7.2	138	0	113	2.2	65
	77-04-26	51	13	29	6.5	130	0	110	2.6	64
12/27E-20P01	76-04-26	47	13	25	7.6	164	0	135	3.3	67
12/27E-24H01	76-04-06	48	11	23	7.1	146	0	120	2.3	55
12/27E-27H01	76-04-06	53	11	20	8.0	141	0	116	2.8	53
12/27E-33J01	76-04-05	46	12	22	7.3	151	0	124	3.0	62
12/28E-10G01	76-04-07	48	9.5	19	5.5	160	0	131	2.6	33
12/28E-10F01	76-04-07	54	11	19	6.9	149	0	122	2.4	50
	77-04-26	55	12	20	6.3	140	0	110	3.6	52
12/28E-20Q01	77-04-26	35	9.5	13	5.9	140	0	110	2.2	24
13/25E-11H01	77-04-27	43	5.9	18	4.9	120	0	98	4.8	42
13/25E-30G01	77-04-27	17	9.2	29	7.8	170	0	140	2.7	1.4
13/26E-31H01	77-04-27	32	13	19	3.6	120	0	98	2.4	24
13/26E-34C01	76-04-08	57	12	39	19	113	0	93	1.1	150
	77-04-27	63	15	43	11	100	0	82	1.0	190
13/26E-34D01	76-04-28	85	25	53	9.7	138	0	113	5.5	90
13/27E-31H01	77-04-29	25	11	18	4.5	120	0	98	1.9	29
14/26E-20G01	77-04-27	27	4.6	2.9	2.4	75	0	62	1.5	16

QUALITY OF GROUND WATER

BENTON COUNTY--Continued

WATER QUALITY DATA, APRIL 1976 TO APRIL 1977

LOCAL IDENT- I- FIER	DATE OF SAMPLE	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	BROMIDE (BR) (MG/L)	IODIDE (I) (MG/L)	DIS- SOLVED SILICA (SIO2) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL FILT- RABLE RESIDUE (MG/L)	DIS- SOLVED SOLIDS (SUM OF CONSTI- TUENTS) (MG/L)	DIS- SOLVED SOLIDS (TONS PER AC-FT)
10/26E-11C03	77-04-25	21	.5	.1	.00	13	190	270	170	.26
10/26E-11F03	77-04-25	12	.9	7.0	.00	19	185	280	182	.25
10/26E-16D01	76-04-05	8.1	.4	.1	.00	25	259	430	267	.35
11/27E-02G01	76-04-05	11	.4	.1	.00	35	284	430	263	.39
11/27E-26C01	77-04-25	22	1.3	.1	.00	38	259	440	263	.35
11/28E-09H01	77-04-25	7.1	.4	.1	.00	36	227	370	228	.31
11/28E-23D01	76-04-05	3.7	.5	.1	.00	31	176	280	163	.24
11/28E-29P01	77-04-25	18	.6	.2	.00	32	251	380	256	.34
12/25E-11H01	77-04-28	6.9	.5	.0	.00	38	161	280	168	.22
12/26E-04A01	77-04-27	8.3	.4	.1	.00	50	269	460	263	.37
12/26E-07A01	76-04-08	32	.4	.2	.01	67	616	1100	330	.84
12/26E-07G01	76-04-08	16	.4	.2	.01	39	317	440	307	.43
12/26E-12H01	76-04-08	3.6	.6	.0	.01	68	252	460	270	.34
12/26E-13A01	76-04-08	11	.7	.0	.00	62	297	540	263	.40
12/26E-13H01	76-04-06	11	.7	.0	.00	46	295	500	251	.40
	77-04-26	12	.7	.1	.00	39	278	450	255	.38
12/26E-15C01	76-04-09	7.3	.4	.0	.00	40	272	500	276	.37
	77-04-28	7.7	.5	.1	.00	44	276	490	281	.37
12/26E-18E01	76-04-08	16	.4	.1	.01	33	196	420	203	.27
12/26E-25G01	77-04-28	6.9	.5	.1	.00	28	248	400	245	.34
12/27E-03H01	76-04-07	9.5	.4	.1	.00	35	291	530	273	.40
12/27E-05D01	77-04-26	3.6	.9	.0	.01	65	221	370	229	.30
12/27E-19G01	76-04-06	17	.4	.0	.01	31	351	510	286	.48
	77-04-26	28	.4	.1	.00	31	338	480	288	.46
12/27E-20P01	76-04-06	9.2	.6	.1	.00	42	317	490	292	.43
12/27E-24H01	76-04-06	13	.4	.0	.00	36	319	480	266	.43
12/27E-27A01	76-04-06	14	.4	.1	.00	36	316	470	265	.43
12/27E-33J01	76-04-05	9.0	.5	.1	.00	36	299	480	272	.41
12/28E-14D01	76-04-07	8.7	.4	.1	.00	31	235	460	226	.32
12/28E-19F01	76-04-07	13	.3	.0	.00	34	314	550	262	.43
	77-04-26	12	.3	.1	.00	36	313	480	264	.43
12/28E-20G01	77-04-26	6.4	.3	.1	.00	32	193	310	196	.26
13/25E-11H01	77-04-27	6.6	.2	.1	.00	46	221	360	219	.30
13/25E-30G01	77-04-27	4.5	.8	.1	.01	55	201	340	209	.27
13/26E-31K01	77-04-27	11	.5	.1	.00	39	208	370	193	.28
13/26E-34C01	76-04-08	23	.5	.4	.00	31	396	600	370	.54
	77-04-27	23	.5	.2	.00	32	433	600	428	.59
13/26E-36D01	76-04-08	9.2	.8	.1	.01	38	644	1000	388	.88
13/27E-31H01	77-04-28	3.8	.4	.9	.03	47	200	330	190	.27
14/26E-20G01	77-04-27	2.5	.1	.9	.03	17	121	210	110	.16

BENTON COUNTY--Continued

WATER QUALITY DATA, APRIL 1976 TO APRIL 1977

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL AMMONIA NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED BISMUTH (BI) (UG/L)
10/28E-11C03	77-04-25	6.1	.00	.03	.07	20	2	0	0	<450
10/28E-11F03	77-04-25	3.3	.01	.03	.08	20	1	0	0	<450
10/28E-14D01	76-04-05	3.2	.00	.01	.04	10	6	60	<2	<8
11/27E-02G01	76-04-05	6.7	.00	.09	.06	20	8	40	<2	<8
11/27E-26C01	77-04-25	.98	.00	.02	.04	10	4	0	10	<450
11/28E-09B01	77-04-25	1.9	.00	.02	.02	10	7	0	10	<450
11/28E-23D01	76-04-05	3.1	.13	.11	.06	40	16	20	<1	<5
11/28E-29P01	77-04-25	1.9	.00	.04	.05	0	5	0	10	<450
12/25E-11H01	77-04-28	.26	.00	.04	.07	0	3	0	0	<450
12/26E-04N01	77-04-27	6.4	.00	.04	.02	0	2	0	0	<450
12/26E-07B01	76-04-08	58	.00	.04	.03	10	2	100	<4	<15
12/26E-07D01	76-04-08	5.2	.00	.06	.05	10	1	50	<3	<10
12/26E-12H01	76-04-08	.21	.00	.06	.03	10	6	60	<2	<8
12/26E-13A01	76-04-08	10	.00	.04	.03	20	6	50	<2	<9
12/26E-13H01	76-04-06	7.8	.01	.08	.02	20	1	40	<2	<9
	77-04-26	7.1	.01	.05	.02	0	1	0	10	<450
12/26E-15C01	76-04-09	2.3	.00	.06	.03	10	2	70	<2	<9
	77-04-28	2.5	.00	.04	.03	0	2	100	0	<450
12/26E-18E01	76-04-08	1.2	.05	.22	.02	10	0	20	<2	<7
12/26E-25B01	77-04-28	2.3	.00	.04	.02	0	2	0	0	<450
12/27E-03M01	76-04-07	9.2	.00	.04	.03	20	7	40	<2	<9
12/27E-05B01	77-04-26	.01	.00	.04	.03	10	9	0	0	<450
12/27E-15G01	76-04-06	14	.00	.02	.02	10	2	50	<2	<10
	77-04-26	16	.00	.04	.02	0	3	100	0	<450
12/27E-20P01	76-04-06	6.2	.00	.02	.03	10	4	50	<2	<9
12/27E-24M01	76-04-06	8.9	.00	.02	.02	10	7	70	<2	<9
12/27E-27R01	76-04-06	12	.00	.02	.02	10	11	90	<2	<9
12/27E-33J01	76-04-05	6.6	.00	.01	.03	10	10	80	<2	<9
12/28E-10D01	76-04-07	4.4	.00	.02	.02	30	4	70	<1	<7
12/28E-19F01	76-04-07	13	.00	.02	.02	20	5	60	<2	<9
	77-04-28	13	.01	.04	.02	0	6	100	0	<450
12/28E-20B01	77-04-28	2.5	.02	.05	.02	0	5	100	10	<450
13/25E-11H01	77-04-27	1.1	.00	.04	.02	0	2	0	0	<450
13/25E-30G01	77-04-27	.03	.00	.04	.01	0	0	0	0	<450
13/26E-31H01	77-04-27	5.1	.00	.04	.01	0	1	0	0	<450
13/26E-34C01	76-04-08	2.0	.01	.09	.02	10	6	40	<3	<10
	77-04-27	3.7	.01	.08	.01	0	3	100	10	<450
13/26E-36D01	76-04-08	61	.01	.04	.02	50	4	90	<3	<15
13/27E-31H01	77-04-28	3.3	.01	.04	.01	0	2	0	0	<450
14/26E-20B01	77-04-27	4.9	.00	.04	.06	0	2	0	10	<450

BENTON COUNTY--Continued

WATER QUALITY DATA, APRIL 1976 TO APRIL 1977

LOCAL IDENT- I- FIER	DATE OF SAMPLE	DIS- SOLVED BORON (B) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	HEXA- VALENT CHRO- MIUM (CR6) (UG/L)	DIS- SOLVED COBALT (CO) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED GALLIUM (GA) (UG/L)	DIS- SOLVED GER- MANIUM (GE) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)
10/28E-11C03	77-04-25	20	0	0	0	0	1	<6	<10	30
10/28E-11F03	77-04-25	80	0	10	0	2	1	10	<10	30
10/28E-14D01	76-04-05	30	1	<6	1	<6	0	<3	<6	10
11/27E-02Q01	76-04-05	20	0	<6	6	<5	0	<3	<6	10
11/27E-26C01	77-04-25	150	0	0	0	0	0	10	<10	20
11/28E-09R01	77-04-25	10	0	0	0	0	0	<6	<10	40
11/28E-23D01	76-04-05	20	0	<4	0	<4	0	<2	<4	20
11/28E-29P01	77-04-25	40	0	0	1	0	0	10	<10	20
12/25E-11R01	77-04-28	30	0	0	0	0	0	7	<10	30
12/26E-04N01	77-04-27	20	0	0	0	0	0	<6	<10	30
12/26E-07B01	76-04-08	20	0	<10	0	<10	0	<5	<10	10
12/26E-07Q01	76-04-08	20	0	<1	2	<8	1	<3	<8	10
12/26E-12H01	76-04-08	30	0	<6	0	<6	0	<3	<6	30
12/26E-13A01	76-04-08	30	1	<7	0	<7	2	<3	<7	30
12/26E-13H01	76-04-06	40	0	<6	0	<6	1	<3	<6	60
	77-04-26	30	0	0	0	0	0	<6	<10	120
12/26E-15C01	76-04-09	20	0	<7	1	<7	0	<3	<7	10
	77-04-28	20	0	0	0	0	0	7	<10	30
12/26E-18E01	76-04-08	20	0	<5	0	<5	0	<2	<5	140
12/26E-25Q01	77-04-28	10	0	0	0	0	0	9	<10	10
12/27E-03N01	76-04-07	30	0	<6	4	<6	0	<3	<6	10
12/27E-05Q01	77-04-26	30	0	0	0	0	2	<6	<10	170
12/27E-15G01	76-04-06	30	0	<7	3	<7	0	<3	<7	30
	77-04-26	20	0	0	0	2	1	10	<10	30
12/27E-20P01	76-04-06	40	0	<7	4	<7	0	<3	<7	30
12/27E-24N01	76-04-06	30	0	<7	5	<7	0	<3	<7	10
12/27E-27R01	76-04-06	30	0	<7	4	<7	0	<3	<7	20
12/27E-33J01	76-04-05	30	0	<6	6	<6	0	<3	<6	20
12/28E-18D01	76-04-07	20	0	<6	3	<6	10	<2	<7	10
12/28E-19F01	76-04-07	20	0	<7	3	<7	0	<3	<7	10
	77-04-26	20	0	0	4	0	0	20	<10	20
12/28E-28Q01	77-04-26	10	1	0	0	0	1	10	<10	20
13/25E-11N01	77-04-27	10	0	10	15	0	0	9	<10	30
13/25E-30G01	77-04-27	20	0	0	0	0	0	0	<10	120
13/26E-31K01	77-04-27	9	0	0	2	0	0	<6	<10	10
13/26E-34C01	76-04-08	20	0	<8	0	<8	0	<3	<8	20
	77-04-27	20	0	0	0	0	0	10	<10	10
13/26E-34D01	76-04-08	30	1	14	0	<10	33	<5	<20	120
13/27E-31N01	77-04-28	9	0	0	0	0	0	<6	<10	10
14/26E-28G01	77-04-27	10	0	0	0	0	0	<6	<10	30

WATER QUALITY DATA, APRIL 1976 TO APRIL 1977

LOCAL IDENT- I- FIER	DATE OF SAMPLE	FERROUS IRON (FE) (UG/L)	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED LITHIUM (LI) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	DIS- SOLVED MOLYB- DENUM (MO) (UG/L)	DIS- SOLVED NICKEL (NI) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED STRON- TIUM (SR) (UG/L)
10/28E-11C03	77-04-25	20	0	0	4	25	2	0	0	140
10/28E-11F03	77-04-25	20	2	0	4	6	3	2	0	160
10/28E-14D01	76-04-05	0	7	0	<4	6	<6	0	<1	200
11/27E-02Q01	76-04-05	10	<6	0	10	10	<6	1	<1	200
11/27E-26C01	77-04-25	20	0	0	20	5	2	1	0	210
11/28E-09R01	77-04-25	20	0	10	0	6	3	2	0	220
11/28E-23D01	76-04-05	0	3	0	<2	20	<4	1	<1	130
11/28E-29P01	77-04-25	20	0	0	0	4	3	2	0	210
12/25E-11R01	77-04-28	30	0	10	0	7	2	0	0	100
12/26E-04N01	77-04-27	30	0	10	0	7	3	1	0	210
12/26E-07R01	76-04-08	0	<10	10	<7	5	<10	5	<2	380
12/26E-07Q01	76-04-08	10	<8	0	110	30	<8	5	<1	220
12/26E-12H01	76-04-08	10	<6	<20	100	30	<6	1	<1	210
12/26E-13A01	76-04-08	20	<7	0	50	30	<7	1	<1	170
12/26E-13H01	76-04-06	40	<6	0	<4	20	<6	1	<1	170
	77-04-26	20	0	10	40	9	2	1	0	200
12/26E-15C01	76-04-09	10	<7	10	<4	30	<7	12	<1	170
	77-04-28	20	0	10	0	12	2	2	0	240
12/26E-18E01	76-04-08	70	<5	10	<3	10	<5	3	<1	110
12/26E-25Q01	77-04-28	10	0	10	0	3	2	5	0	240
12/27E-03N01	76-04-07	10	<6	0	<4	10	<6	6	<1	190
12/27E-05Q01	77-04-26	170	0	20	50	3	3	0	0	160
12/27E-15G01	76-04-06	10	<7	0	20	10	<7	1	<1	260
	77-04-26	30	2	10	20	3	3	1	0	290
12/27E-20P01	76-04-06	10	<7	0	<4	30	<7	2	<1	210
12/27E-24M01	76-04-06	0	<7	0	<4	10	<7	1	<1	230
12/27E-27R01	76-04-06	10	<7	10	<4	6	<7	1	<1	220
12/27E-33J01	76-04-05	10	<6	10	<4	20	<6	2	<1	200
12/28E-18D01	76-04-07	10	<6	10	<4	10	<5	2	<1	210
12/28E-19F01	76-04-07	10	<7	0	20	4	<7	2	<1	240
	77-04-26	20	2	10	8	1	2	1	0	280
12/28E-28Q01	77-04-26	20	0	0	20	2	2	2	0	200
13/25E-11H01	77-04-27	20	0	10	4	2	2	1	0	220
13/25E-30G01	77-04-27	60	0	20	60	0	2	0	0	90
13/26E-31K01	77-04-27	20	0	10	0	7	3	1	0	170
13/26E-34C01	76-04-08	10	<8	10	70	55	<8	11	<1	270
	77-04-27	10	0	10	70	18	4	15	0	320
13/26E-34D01	76-04-08	30	<10	10	<7	20	<10	6	<1	390
13/27E-31N01	77-04-28	20	2	10	40	7	2	0	0	210
14/26E-28G01	77-04-27	20	2	0	0	0	3	0	0	140

BENTON COUNTY--Continued

WATER QUALITY DATA, APRIL 1976 TO APRIL 1977

LOCAL IDENT- I- FIER	DATE OF SAMPLE	DIS- SOLVED TIN (SN) (UG/L)	DIS- SOLVED TI- TANIUM (TI) (UG/L)	DIS- SOLVED VANA- DIUM (V) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	DIS- SOLVED ZIR- CONIUM (ZR) (UG/L)	DIS- SOLVED GROSS ALPHA AS U-NAT. (UG/L)	DIS- SOLVED GROSS BETA AS CS-137 (PC/L)
10/28E-11C03	77-04-25	<10	<2	2.2	20	<2	75	52
10/28E-11F03	77-04-25	<10	2	4.3	10	6	140	36
10/28E-14D01	76-04-05	<8	<3	8.0	10	<8	<5.0	7.3
11/27E-02Q01	76-04-05	<8	<3	10	120	<8	7.0	42
11/27E-26C01	77-04-25	<10	<2	10	8	6	<5.4	9.4
11/28E-09R01	77-04-25	<10	<2	10	10	<2	8.2	9.1
11/28E-23D01	76-04-05	<5	<2	30	0	<5	6.7	6.9
11/28E-29P01	77-04-25	<10	<2	10	70	2	8.5	7.7
12/25E-11R01	77-04-28	<10	<2	35	8	<2	80	21
12/26E-04N01	77-04-27	<10	<2	35	6	<2	<5.1	8.6
12/26E-07B01	76-04-08	<15	<5	16	20	<20	<15	370
12/26E-07Q01	76-04-08	<10	<3	20	40	<10	<9.6	83
12/26E-12H01	76-04-08	<8	<3	4.0	20	<8	<7.5	9.3
12/26E-13A01	76-04-08	<9	<3	20	20	<9	14	91
12/26E-13H01	76-04-06	<9	<3	8.0	10	<9	17	66
	77-04-26	<10	<2	8.6	10	<2	12	66
12/26E-15C01	76-04-09	<9	<3	20	110	<9	<6.1	10
	77-04-28	<10	<2	35	210	<2	11	9.5
12/26E-18E01	76-04-08	<7	<2	5.0	20	<7	<4.2	4.8
12/26E-25Q01	77-04-28	<10	<2	5.6	230	<2	6.9	8.3
12/27E-03N01	76-04-07	<9	<3	12	0	<9	11	43
12/27E-05Q01	77-04-26	<10	<2	.8	10	4	<5.0	10
12/27E-15G01	76-04-06	<10	<3	8.0	10	<10	8.6	210
	77-04-26	<10	<2	6.5	20	2	<6.8	240
12/27E-20P01	76-04-06	<9	<3	20	0	<9	7.4	48
12/27E-24M01	76-04-06	<9	<3	13	0	<9	<5.9	180
12/27E-27R01	76-04-06	<9	<3	14	30	<9	8.8	130
12/27E-33J01	76-04-05	<9	<3	15	0	<9	12	66
12/28E-18D01	76-04-07	<5	<3	10	30	<10	17	20
12/28E-19F01	76-04-07	<9	<3	10	60	<9	<9.3	170
	77-04-26	<10	<2	20	60	3	7.8	190
12/28E-28Q01	77-04-26	<10	3	18	8	<2	7.9	9.1
13/25E-11H01	77-04-27	<10	<2	6.3	9	<2	<5.3	130
13/25E-30G01	77-04-27	<10	3	.0	3	4	<4.7	9.5
13/26E-31K01	77-04-27	<10	<2	35	8	<2	<4.9	3.9
13/26E-34C01	76-04-08	<10	<3	7.0	0	<10	<7.3	13
	77-04-27	<10	<2	7.8	10	2	<7.3	13
13/26E-34D01	76-04-08	<10	<5	10	70	<20	<16	2900
13/27E-31N01	77-04-28	<10	<2	35	3	<2	<4.3	6.5
14/26E-28G01	77-04-27	<10	<2	7.8	8	<2	<2.3	290

BENTON COUNTY--Continued

WATER QUALITY DATA, APRIL 1976 TO APRIL 1977

LOCAL IDENT- I- FIER	DATE OF SAMPLE	DIS- SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	CESIUM 137 DIS- SOLVED (PC/L)	DIS- SOLVED STRON- TIUM 90 (PC/L)	TOTAL TRITIUM (PC/L)	DIS- SOLVED COBALT 60 (PC/L)
10/28E-11C03	77-04-25	46	<1.0	<.4	<480	<10
10/28E-11F03	77-04-25	30	<1.0	<.4	<480	<10
10/28E-14D01	76-04-05	5.8	<1.0	<.4	<480	<5
11/27E-02Q01	76-04-05	33	3.0	<.4	190000	<5
11/27E-26C01	77-04-25	7.5	<1.0	<.4	<480	<10
11/28E-09R01	77-04-25	7.5	<1.0	<.4	<480	<10
11/28E-23D01	76-04-05	5.5	1.0	<.4	<480	<5
11/28E-29P01	77-04-25	6.4	<1.0	<.4	<480	<10
12/25E-11H01	77-04-28	18	<1.0	<.4	<480	<10
12/26E-04N01	77-04-27	6.9	<1.0	<.4	4000	<10
12/26E-07R01	76-04-08	300	3.0	<.4	64000	<5
12/26E-07Q01	76-04-08	71	24	<.4	8900000	<5
12/26E-12H01	76-04-08	7.4	1.0	<.4	7900	<5
12/26E-13A01	76-04-08	75	2.0	<.4	1000000	6
12/26E-13H01	76-04-06	54	2.0	<.4	720000	6
	77-04-26	53	<1.0	<.4	470000	20
12/26E-15C01	76-04-09	8.2	<1.0	.7	>480	<5
	77-04-28	7.7	<1.0	<.4	<480	<10
12/26E-18E01	76-04-08	3.8	<1.0	<.4	95000	<5
12/26E-25Q01	77-04-28	7.0	<1.0	<.4	<480	10
12/27E-03N01	76-04-07	35	1.0	<.4	160000	<5
12/27E-05Q01	77-04-26	8.2	<1.0	<.4	<480	<20
12/27E-15G01	76-04-06	170	3.0	<.4	1400000	7
	77-04-26	200	2.0	<.4	1400000	<10
12/27E-20P01	76-04-06	39	3.0	<.4	310000	<5
12/27E-24M01	76-04-06	140	5.0	<.4	1100000	6
12/27E-27R01	76-04-06	110	2.0	<.4	770000	6
12/27E-33J01	76-04-05	53	1.0	<.4	350000	<5
12/28E-18D01	76-04-07	16	<1.0	<.4	90000	<5
12/28E-19F01	76-04-07	140	2.0	<.4	1000000	7
	77-04-26	150	1.0	<.4	990000	70
12/28E-28Q01	77-04-26	7.3	<1.0	<.4	<480	<10
13/25E-11H01	77-04-27	110	<1.0	42	2300	10
13/25E-30G01	77-04-27	7.8	<1.0	<.4	<480	<10
13/26E-31K01	77-04-27	3.2	<1.0	<.4	<480	<10
13/26E-34C01	76-04-08	9.9	<1.0	<.4	<480	<5
	77-04-27	11	1.0	<.4	<480	20
13/26E-34D01	76-04-08	2300	210	<.4	310000	90
13/27E-31N01	77-04-28	5.3	<1.0	<.4	410000	10
14/26E-28G01	77-04-27	230	1.0	12	53000	130

SPOKANE COUNTY

WATER QUALITY DATA, MARCH TO MAY 1977

LOCAL IDENT-I-FIER	STATION NUMBER	LAT-I-TUDE	LONG-I-TUDE	SEQ. NO.	DATE OF SAMPLE	TIME	ELEV. OF LAND SURFACE DATUM (FT. ABOVE MSL)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
25/42E-13B01	474013117261601	47 40 11	117 26 14	01	77-03-24	1255	1886.00	295	7.4
					77-05-19	0905	1886.00	335	--
25/43E-13A01	474005117182601	47 40 05	117 18 26	01	77-03-25	1500	1950.00	265	7.8
					77-05-17	1730	1950.00	216	--
25/43E-14K01	473950117200601	47 39 48	117 20 05	01	77-03-24	1335	1932.00	225	7.4
					77-05-17	1145	1932.00	400	--
25/44E-01R01	474110117104701	47 41 10	117 10 47	01	77-03-25	1125	--	295	7.7
					77-05-19	0900	--	280	--
25/44E-02Q01	474118117121501	47 41 18	117 12 15	01	77-03-28	1320	2015.00	310	7.7
25/44E-18D02	474010117180001	47 40 10	117 17 56	01	77-04-01	0845	1950.00	279	7.4
					77-05-17	1800	1950.00	272	--
25/44E-19D01	473923117180501	47 39 23	117 18 05	01	77-03-25	1020	1963.00	380	7.6
25/45E-15D01	474012117062501	47 40 12	117 06 25	01	77-03-31	0925	2070.00	230	7.8
25/45E-16K01	473951117071601	47 39 51	117 07 16	01	77-03-31	1055	2070.00	1040	6.6
26/42E-11J01S	474546117272701	47 45 46	117 27 27	01	77-03-24	1115	1590.00	360	7.6
26/42E-12A01S	474611117255801	47 46 11	117 25 58	01	77-03-24	1035	1590.00	300	7.8
26/42E-27N01	474304117294401	47 43 04	117 29 44	01	77-03-24	1525	1690.00	269	8.0
					77-05-19	1700	1690.00	285	--
26/43E-05L01S	474630117235701	47 46 30	117 23 57	01	77-03-28	1105	1670.00	430	8.0
26/43E-07B01S	474621117251201	47 46 21	117 25 12	01	77-03-24	0955	1662.00	320	7.8
26/45E-35F01	474237117045801	47 42 37	117 04 58	01	77-03-25	1330	2083.00	255	7.7

LOCAL IDENT-I-FIER	DATE OF SAMPLE	TEMPER-ATURE (DEG C)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)
25/42E-13B01	77-03-24	12.0	150	19	39	13	8.5	2.4	161	0
	77-05-19	12.2	--	--	--	--	--	--	--	--
25/43E-13A01	77-03-25	8.1	140	15	33	15	3.3	1.9	150	0
	77-05-17	15.2	--	--	--	--	--	--	--	--
25/43E-14K01	77-03-24	10.0	110	10	29	9.6	3.0	1.5	124	0
	77-05-17	10.4	--	--	--	--	--	--	--	--
25/44E-01R01	77-03-25	9.0	150	10	35	15	2.9	1.9	170	0
	77-05-19	9.3	--	--	--	--	--	--	--	--
25/44E-02Q01	77-03-28	9.5	140	2	38	12	5.1	9.0	174	0
25/44E-18D02	77-04-01	7.5	150	11	34	16	3.4	2.0	170	0
	77-05-17	14.0	--	--	--	--	--	--	--	--
25/44E-19D01	77-03-25	11.4	190	19	51	15	8.6	2.7	207	0
25/45E-15D01	77-03-31	11.7	130	14	35	10	4.3	1.9	140	0
25/45E-16K01	77-03-31	13.8	560	51	150	45	10	3.7	620	0
26/42E-11J01S	77-03-24	10.6	180	24	39	20	5.2	2.4	190	0
26/42E-12A01S	77-03-24	10.3	150	14	30	17	3.3	2.1	159	0
26/42E-27N01	77-03-24	11.2	140	17	36	13	4.2	2.0	154	0
	77-05-19	11.9	--	--	--	--	--	--	--	--
26/43E-05L01S	77-03-28	11.4	200	63	44	21	13	3.5	163	0
26/43E-07B01S	77-03-24	9.8	160	22	33	19	3.2	2.1	169	0
26/45E-35F01	77-03-25	8.4	140	8	31	16	2.7	1.7	155	0

SPOKANE COUNTY--Continued

WATER QUALITY DATA, MARCH TO MAY 1977

LOCAL IDENT- I- FIER	DATE OF SAMPLE	ALKA- LINITY AS CACO3 (MG/L)	DIS- SOLVED SULFATE (SO4) (MG/L)	DIS- SOLVED CHLO- RIDE (CL) (MG/L)	DIS- SOLVED FLUO- RIDE (F) (MG/L)	DIS- SOLVED SOLIDS (RESI- DUE AT 180 C) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL AMMONIA NITRO- GEN (N) (MG/L)
25/42E-13B01	77-03-24	130	19	9.3	.1	190	2.4	.00	--	.02
	77-05-19	--	--	11	--	--	2.3	.00	2.3	.06
25/43E-13A01	77-03-25	130	16	1.8	.1	156	1.2	.00	--	.02
	77-05-17	--	--	1.4	--	--	1.2	.00	1.2	.04
25/43E-14K01	77-03-24	100	14	1.8	.0	133	1.4	.00	--	.04
	77-05-17	--	--	2.0	--	--	1.3	.00	1.3	.01
25/44E-01R01	77-03-25	140	15	.9	.1	166	.90	.00	--	.01
	77-05-19	--	--	1.0	--	--	1.0	.00	1.0	.03
25/44E-02Q01	77-03-28	140	13	2.7	.1	177	2.3	.00	--	.01
25/44E-18D02	77-04-01	140	19	1.9	.1	161	.91	.00	--	.00
	77-05-17	--	--	1.7	--	--	1.4	.00	1.4	.02
25/44E-19D01	77-03-25	170	15	8.3	.1	226	3.7	.00	--	.01
25/45E-15D01	77-03-31	110	14	3.1	.1	152	3.3	.00	--	.01
25/45E-16K01	77-03-31	510	15	38	.4	594	1.1	.00	--	.05
26/42E-11J01S	77-03-24	160	24	6.2	.1	206	2.7	.00	--	.05
26/42E-12A01S	77-03-24	130	19	2.3	.1	162	1.4	.00	--	.04
26/42E-27N01	77-03-24	130	17	3.9	.0	168	1.7	.00	--	.05
	77-05-19	--	--	4.1	--	--	1.7	.00	1.7	.03
26/43E-05L01S	77-03-28	130	68	15	.1	258	1.8	.00	--	.02
26/43E-07B01S	77-03-24	140	20	2.7	.1	174	1.6	.00	--	.04
26/45E-35F01	77-03-25	130	14	.7	.1	148	.69	.00	--	.01

LOCAL IDENT- I- FIER	DATE OF SAMPLE	TOTAL KJEL- DAHL NITRO- GEN (N) (MG/L)	TOTAL PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ORTHO. PHOS- PHORUS (P) (MG/L)	DIS- SOLVED ARSENIC (AS) (UG/L)	DIS- SOLVED BARIUM (BA) (UG/L)	DIS- SOLVED CAD- MIUM (CD) (UG/L)	DIS- SOLVED CHRO- MIUM (CR) (UG/L)	DIS- SOLVED COPPER (CU) (UG/L)	DIS- SOLVED IRON (FE) (UG/L)
25/42E-13B01	77-03-24	.06	.01	.01	2	0	0	0	1	0
	77-05-19	--	--	.01	--	--	--	--	--	--
25/43E-13A01	77-03-25	.08	.01	.00	3	0	0	0	280	1400
	77-05-17	--	--	.02	--	--	--	--	--	--
25/43E-14K01	77-03-24	.11	.01	.01	2	0	0	0	1	20
	77-05-17	--	--	.01	--	--	--	--	--	--
25/44E-01R01	77-03-25	.06	.00	.00	2	0	0	0	6	60
	77-05-19	--	--	.00	--	--	--	--	--	--
25/44E-02Q01	77-03-28	.06	.00	.00	3	0	0	0	3	0
25/44E-18D02	77-04-01	.10	.01	.01	22	0	0	0	2	30
	77-05-17	--	--	.01	--	--	--	--	--	--
25/44E-19D01	77-03-25	.12	.02	.02	5	100	0	0	3	30
25/45E-15D01	77-03-31	.06	.02	.02	3	0	0	0	1	60
25/45E-16K01	77-03-31	.25	.09	.09	0	100	0	0	4	10
26/42E-11J01S	77-03-24	.10	.01	.01	3	0	0	0	0	10
26/42E-12A01S	77-03-24	.08	.00	.00	4	0	0	0	0	10
26/42E-27N01	77-03-24	.10	.01	.01	3	0	0	0	0	20
	77-05-19	--	--	.01	--	--	--	--	--	--
26/43E-05L01S	77-03-28	.06	.00	.00	2	0	0	0	0	20
26/43E-07B01S	77-03-24	.08	.00	.00	3	0	0	0	0	10
26/45E-35F01	77-03-25	.05	.00	.00	3	0	0	0	0	90

LOCAL IDENT- I- FIER	DATE OF SAMPLE	DIS- SOLVED LEAD (PB) (UG/L)	DIS- SOLVED MAN- GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS- SOLVED SELE- NIUM (SE) (UG/L)	DIS- SOLVED SILVER (AG) (UG/L)	DIS- SOLVED ZINC (ZN) (UG/L)	PHENOLS (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
25/42E-13B01	77-03-24	2	0	.1	0	0	0	2	.00
	77-05-19	--	--	--	--	--	--	--	--
25/43E-13A01	77-03-25	61	10	.0	0	0	10	2	.00
	77-05-17	--	--	--	--	--	--	--	--
25/43E-14K01	77-03-24	2	0	.1	0	0	0	1	.00
	77-05-17	--	--	--	--	--	--	--	--
25/44E-01R01	77-03-25	2	0	.6	0	0	10	2	.00
	77-05-19	--	--	--	--	--	--	--	--
25/44E-02Q01	77-03-28	0	10	.2	0	0	10	0	.00
25/44E-18D02	77-04-01	0	10	.0	1	0	0	2	.00
	77-05-17	--	--	--	--	--	--	--	--
25/44E-19D01	77-03-25	1	0	.0	0	0	10	2	.00
25/45E-15D01	77-03-31	0	0	.0	0	0	0	0	.00
25/45E-16K01	77-03-31	0	10	.1	1	0	60	3	.10
26/42E-11J01S	77-03-24	1	0	.0	0	0	0	1	.00
26/42E-12A01S	77-03-24	2	10	.0	0	0	0	1	.00
26/42E-27N01	77-03-24	4	0	.1	0	0	160	1	.00
	77-05-19	--	--	--	--	--	--	--	--
26/43E-05L01S	77-03-28	0	0	.1	0	0	0	0	.00
26/43E-07B01S	77-03-24	1	0	.0	0	0	0	1	.10
26/45E-35F01	77-03-25	1	0	.0	0	0	0	2	.00

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October 13, 1977

FACTORS FOR CONVERTING U.S. CUSTOMARY UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the U.S. customary units published herein to the International System of Units (SI). Subsequent reports will contain both the U.S. customary and SI unit equivalents in the station manuscript descriptions until such time that all data will be published in SI units.

Multiply U.S. customary units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons